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SASP

3000 MCQs

AUA SELF-ASSESSMENT STUDY PROGRAM

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1. The therapy most likely to cause painful gynecomastia in men with normal serum testosterone is:

A. megestrol acetate,
B. leuprolide and fiutamide.
C. ketoconazole.
D. bicalutamide.
E. finasteride.
Answer=D

Breast tenderness and enlargement during hormonal therapy for prostate cancer are due to elevated serum estrogens. Leuprolide inhibits pituitary LH release so there is no rise in serum testosterone or estrogens Antiandrogens (such as flutamide and bicalutamide) used as monotherapy cause a rise in plasma estradiol levels leading to gynecomastia in about 40% of patients. Finasteride and ketoconazole are infrequently (< 5%) associated with gynecomastia.

2. Bilateral orchiectomy most consistently alters:

A. libido.
B. orgasm.
C. ejaculation.
D. erection.
E. serum prolactin level.
Answer=A

Serum testosterone concentration is most related to sexual interest or libido rather than to erection; emission or ejaculation A surprising number of individuals who have had a bilateral orchiectomy retain the ability to have erection. Serum prolactin levels are sometimes inversely related to serum testosterone (as in hyperprolactinemic states), but otherwise there is no consistent relationship. Bilateral orchiectomy does not cause any reproducible change in the serum prolactin level.

3. The irrigating solution which should be used for percutaneous nephroscopy and ureteroscopy is:

A. 1.5% glycine,
B. sterile water.
C. 3% glycine.
D. 0.9% sodium chloride.
E. 0.15% sodium chloride.
Answer=D

Intravascular fluid absorption can occur with ureteroscopy and percutaneous nephroscopy This may be massive duringpercutaneous nephrostolithotomy if a closed irrigation and drainage system is used Normal saline is both isotonic and nonconductive whereas the other listed fluids do not share both of these properties There is no advantage to using a solution other than normal saline during these procedures unless intrarenal electrosurgery is being performed Only in this situation is it necessary to change to using glycine or sorbitol as the irrigant.

4. A 55-year-old man undergoes a left lower pole partial nephrectomy for a 3.5 cm solid renal mass. The contralateral kidney is normal. Two days postoperatively, his serum hematocrit drops from 32% to 18% over 24 hours. The urine is dark burgundy in color. He is afebrile and vital signs are stable. The next best step is:

A. angiography and embolization of bleeding vessels,
B. reoperation with suture ligation of bleeding vessels,
C. reoperation with nephrectomy,
D. bedrest, serial monitoring, and needed transfusions,
E. cystoscopy with ureteral stent placement.
Answer=D

Complications of partial nephrectomy include hemorrhage, urinary fistula formation, ureteral obstruction, renal insufficiency, and infection Significant intraoperative bleeding can occur in patients who are undergoing partial nephrectomy The need for early control and ready access to the renal artery is emphasized. Postoperative hemorrhage may be self-limiting if confined to the retroperitoneum, or it may be associated with gross hematuria. The initial management of postoperative hemorrhage is expectant with bedrest, serial hemoglobin and hematocrit determinations, frequent monitoring of vital signs, and blood transfusions as needed. Angiography may be helpful in some patients to localize actively bleeding segmental arteries, which may be controlled by angioinfarction. Severe intractable hemorrhage may necessitate re-exp I oration with early control of the renal vessels and ligation of the active bleeding points.

5. A six-year-old girl with a failed dismembered pyeloplasty for ureteropelvic junction obstruction has been left with almost no extrarenal pelvis. In salvaging the kidney by ureterocalycostomy, the most important technical point is:

A. closure of renal parenchyma around ureter,
B. omental wrap of ureter,
C. downward renal mobilization,
D. wide ureteral mobilization,
E. amputation of lower renal pole.
Answer=E

In order to avoid obstruction of the ureter by circumferential cortical fibrosis, an adequate amputation of the lower pole to provide access to the lower pole calyx is important. Preservation of the renal capsule to cover the parenchyma helps with hemostasis. A widely-spatulated, precise ureterocalycostomy will then usually be successful.

6. A nine-year-old girl is struck in the abdomen and right flank by an automobile. She is alert and her vital signs are stable. She has moderate guarding in her right upper quadrant and decreased bowel sounds. Her hematocrit is 33%, and she has blood-tinged urine. A CT scan demonstrates a 4 cm hepatic laceration and hematoma and a 3 cm laceration of the right kidney with minimal contrast extravasation. The next step in management is:

A. observation.
B. peritonea! lavage.
C. renal and hepatic arteriography.
D. percutaneous drain placement.
E. surgical repair of the lacerations.
Answer=A

In children who sustain blunt abdominal trauma. CT' scan can define injuries to the abdominal viscera quite well. Conservative treatment in the stable patient with follow-up CT scan, if needed, will result in reducing the rate of abdominal exploration in the patient with stable visceral injuries to less than 15%.

7. The anatomical relationship of the left internal spermatic vein{s) to the left ureter in the retroperitoneum 2 cm above the internal inguinal ring is:

A. anterior and lateral,
B. anterior and medial,
C. posterior and lateral,
D. posterior and medial,
E. medial and adjacent.
Answer=A

The left spermatic vein courses from the internal ring in the anterior body wall to the renal vein in the retroperitoneum At the area of the internal ring: the vein is anterior and lateral to the ureter which crosses the iliac vessels. The vein crosses anterior to the ureter in its mid-portion and inserts into the left renal vein medial to the upper ureter. In ligating a varicocele; venous ligation may be carried out within the inguinal canal or intra-abdominally, in which case this anatomic relationship is important to know.

8. A 72-year-old man with a large renal cell carcinoma has right hip pain. Bone scan shows multiple metastases and plain films of the right femur show a 4.0 cm lytic lesion. Management should include:

A. external beam radiation therapy to the femur.
B. strontium-89.
C. open stabilization of the femur,
D. pain management,
E. immunotherapy.
Answer=C

Surgical treatment of bony metastases from renal cell carcinoma is indicated for weight-bearing bones with lytic lesions of greater than 3 cm. Although this patient has a poor prognosis, average survival will be one year and, should he develop a femur fracture, the quality of his remaining survival will be markedly diminished.

9. Compared to a Kock pouch, a continent urinary diversion using detubularized right colon with a tunneled ureteral reimplant has a higher rate of:

A. ureteral obstruction,
B. nocturnal incontinence,
C. difficult catheterization,
D. bowel obstruction,
E. electrolyte disorders.
Answer=A

A Kock pouch uses an intussuscepted nipple valve afferent limb to prevent reflux and has a lower incidence of ureteral obstruction than a tunneled reimplantation There is no apparent difference between the two techniques in the incidence of incontinence. A Kock pouch is associated with a higher rate of difficult catheterization of the efferent valve.

10. A 23-year-old man undergoes cavernosometry for evaluation of erectile dysfunction. After prostaglandin E1 {20 meg) is injected, the intracorporeal pressure (ICR) does not rise within ten minutes. After two minutes of saline infusion (100 cc/min), the ICP is 30 mm Hg. He has:

A. normal arterial inflow and normal ability to store blood intracavernosally.
B. failure to store blood intracavernosally.
C. normal arterial inflow only.
D. abnormal arterial inflow and inability to store blood intracavernosally.
E. abnormal arterial inflow and normal ability to store blood intracavernosally.
Answer=B

The dynamic infusion cavernosometry shows that since the intracavernous pressure (ICP) did not rise following PGE1 injection (before saline infusion), the patient either had poor arterial in-flow and/or failure to store intracavemosally. The fact that his ICP did not rise following saline infusion suggests that the patient does not have the ability to store bloodintracavemosally. Cavernosometry cannot provide any information as to the status of the arterial system.

11. The most frequent complication after partial nephrectomy is:

A. bleeding,
B. urinary fistula,
C. renal failure.
D. UTI
E. renal infarction.
Answer=B

In a recently reported large series of partial nephrectomies, urinary fistula was reported as the most frequent complication (17%), followed by renal failure, infection, bleeding, and vascular thrombosis. Fistulas occurred more frequently in larger, centrally located tumors and those removed with an ex vivo approach.

12. The best test to diagnose acute bacterial cystitis prior to therapy is:

A. nitrite test,
B. microscopy.
C. leukocyte esterase test,
D. streak plate culture,
E. pour plate culture.
Answer=B

Microscopic examination of the urine is the most rapid and inexpensive means to diagnose UTIs and determine the response to therapy. It provides useful information concerning the likely invaders and whether cultures and susceptibility tests might be needed The urine may be examined with or without staining and with or without centrifugation, depending on the expertise of the examiner. Unstained specimens are useful for rapid diagnosis. Gram stains provide more reliable information about the potential pathogen

13. A 42-year-old woman has a BP of 180/115 mm Hg. Serum chemistries include: BUN 14 mg/dl, creatinine 0.9 mg/dl, Na 140mEq/l, C02 28mEq/l, K 3.1mEq/l, Cl 100mEq/l, calcium 10.4 mg/dl, and phosphorus 3.4 mg/dl. The plasma renin is 0.5 mg/ml/hr (normal: 1.0-8.0). The most likely diagnosis is:

A. pheochromocytoma.
B. renal tubular acidosis,
C. renal artery stenosis.
D. Page kidney.
E. primary hyperaldosteronism.
Answer=E

The findings of hypertension hypokalemia; and suppressed plasma renin activity are consistent with primary hyperaldosteronism. With renal artery stenosis or a Page kidney the plasma renin level should be elevated. The serum CO2 of 28mEq/l mitigates against renal tubular acidosis. There are no data to support a diagnosis of pheochromocytoma in this patient

14. A 38-year-old man has testicular pain two months after testicular sperm extraction for azoospermia. He has a 1 cm hypoechoic lesion in his right testis on ultrasound. Tumor markers are negative. The next step is:

A. repeat tumor markers,
B. serum testosterone,
C. radical orchiectomy.
D. repeat scrotal ultrasound in three months,
E. testicular biopsy.
Answer=D

Intratesticular lesions are common after testis biopsies including testicular sperm extraction. Most of these lesions are hypoechoic and reflect inflammation or small hematomas. Although serum testosterone levels may be transiently affected; this test will not affect management. Testicular biopsy is unlikely to be helpful. A repeat scrotal ultrasound in three months is likely to show resolution of the lesion

15. A 68-year-old man with end-stage renal failure due to chronic glomerulonephritis has been on peritoneal dialysis for three years. He is anuric and asymptomatic. An ultrasound study reveals several simple non-echogenic cysts involving the left kidney, and no right renal masses are seen. The best management is:

A. left nephrectomy.
B. CT scan.
C. renal arteriography.
D. repeat ultrasound in two years.

E. conversion to hemodialysis.
Answer=D
Acquired renal cystic disease (ARCD) is known to occur in up to 45% of patients with chronic renal failure Retrospective studies have indicated that renal cell carcinoma may develop in a small percentage (< 10%) of patients with ARCD. For this reason, periodic ultrasound is now recommended for patients on chronic dialysis. It is appropriate to consider CT arteriography, or surgical intervention only when the ultrasound suggests a complex cyst or tumor Both hemodialysis and peritoneal dialysis have been associated with an equivalent incidence of ARCD, and there is no evidence that conversion from one form of dialysis to another influences this disease.

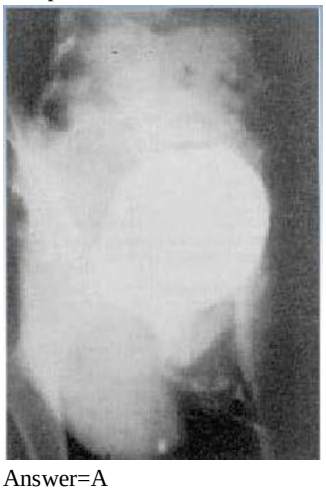
16. The bladder neoplasm arising from remnants of the allantoic duct is:
A. adenocarcinoma,
B. inverted papilloma,
C. nephrogenic adenoma,
D. squamous carcinoma,
E. rhabdomyosarcoma.
Answer=A
Adenocarcinomas may arise from the remnant of allantoic duct (urachus), in exstrophic bladders, and among patients with uretero-intestinal diversion

17. Abnormalities of chromosome 3p (short arm of chromosome 3) are associated with:
A. oncocytoma.
B. clear cell renal cell carcinoma,
C. acquired renal cystic disease,
D. transitional cel! carcinoma,
E. papillary renal ceil carcinoma.
Answer=B
The most consistent cytogenetic abnormality identified in renal cell carcinoma are deletions and translocations involving the short arm of chromosome 3 (3p). This is now recognized as the genetic aberration associated with Von Hippel-Lindau disease. This abnormality, however, is primarily associated with clear cell, granular and sarcomatoid renal cell carcinoma, but not papillary carcinoma, oncocytoma, or angiomyolipoma. It is not associated with any cystic disease except that observed in VHL disease.

18. A 62-year-old man has a squamous cell carcinoma of the penis with distant metastases. The most effective drug combination is:
A. cyclophosphamide and methotrexate,
B. doxorubicin and cisplatin.
C. actinomycin and vincristine,
D. bleomycin and cisplatin.
E. mitomycin and cisplatin.
Answer=D
Of the combinations of agents listed, the most active for squamous cell carcinoma of the penis are bleomycin and cisplatin. While responses in the 15-25% range have been reported, most are of short duration.

19. The characteristic that distinguishes primary hypoadrenalism from secondary (pituitary) hypoadrenalism is:
A. hypotension,
B. metabolic alkalosis,
C. cutaneous hyperpigmentation,
D. hypernatremia,
E. hyperkalemia.
Answer=C
Since the amino acids of ACTH are identical to the terminal amino acids of melanocyte stimulating hormone (MSH); over
-production of ACTH results in cutaneous hyperpigmentation. Adrenal loss results in lack of negative feedback and over
-production of ACTH Pituitary failure; on the other hand; results in a lack of ACTH

20. A six-year-old girl with recurrent symptomatic UTIs has a normal renal ultrasound. A VCUG is shown {see figure). The best management is:
A. antibacterial therapy,
B. urethral meatotomy.
C. internal urethrotomy,
D. single urethral dilation,
E. repeated urethral dilations.



Answer=A
The VCUG is normal. Formerly; a dilated urethra proximal to the meatus in a voiding cystogram in a female was thought to represent distal urethral stenosis However, on another frame of this voiding cystogram, as is commonly seen, the urethra is of uniform caliber from the bladder neck to the urethral meatus. In addition, no correlation exists between the size of the urethral meatus, the radiographic picture, and the incidence of urinary infection in girls Controlled studies have shown that instrumentation, whether it be by meatotomy, internal urethrotomy or urethral dilation, has no effect on the recurrence rate of urinary infections. Therefore, the correct answer is antibacterial therapy which may be aided by a timed-voiding regimen.

21. Seminal emission depends on an intact:
A. parasympathetic and somatic nervous systems,
B. sympathetic nervous system,
C. parasympathetic nervous system,
D. sympathetic and parasympathetic nervous systems,
E. sympathetic and somatic nervous systems.
Answer=B
Emission is defined as the deposition of seminal fluid into the posterior urethra by the vasa deferentia and the seminal vesicles. Ejaculation is the forceful expulsion of seminal fluid out the urethral meatus by contraction of the bulbocavernosus and ischiocavernosus muscles. Since the vasa and the seminal vesicles are innervated primarily by the sympathetic nervous system, emission is under control of the sympathetic nervous system. Alpha-adrenergic nerve stimulation causes not only contraction of the seminal vesicles and vasa deferentia but also closure of the bladder neck. Ejaculation is the result of somatic nerve stimulation of the periurethral striated musculature. The parasympathetic nervous system is not directly involved with either emission or ejaculation

22. A four-year-old girl has a left flank mass and hematuria. Her hematocrit is 50%. The most likely diagnosis is:
A. renal vein thrombosis,
B. angiomyolipoma.

C. Wilms' tumor,
D. hydronephrosis,
E. polycystic kidney disease.
Answer=C
Wilms' tumor may produce erythropoietin in a manner similar to renal cell carcinoma and hence may manifest erythrocytosis. At this age, Wilms' tumor is more likely than renal cell carcinoma. Renal vein thrombosis is rare in this age group but would most likely present with pain, hematuria or proteinuria without erythrocytosis. Hydronephrosis, polycystic disease and tuberous sclerosis are not usually associated with erythrocytosis

23. While resecting the left lobe of the prostate during a TURP, a large capsular perforation with venous bleeding is noted. Despite spinal anesthesia the patient notes abdominal pain. The best management is:
A. complete the TURP.
B. serum sodium determination before completing the procedure.
C. convert to open prostatectomy.
D. stop procedure and place a urethral catheter.
E. change to an electrovaporization technique.
Answer=D
Extravasation or perforation of the capsule complicates 2% of all TURP'S. Patients may experience abdominal pain; backpain, and nausea or vomiting; even during spinal anesthesia. Bleeding should be controlled as best as possible. The majority of these patients can be managed by urethral catheter drainage and cessation of the operation.

24. A two-year-old boy undergoes a left inguinal exploration for a nonpalpable left testis. At the internal ring, a vas deferens is noted to end blindly. The best next step is:
A. close.
B. perform laparoscopy,
C. explore peritoneal cavity,
D. explore the retroperitoneum.
E. close, then obtain a CT scan.
Answer=C
Although suggestive of the absence of the testis, the finding of a blind-ending vas deferens does not prove this. Proof comes with the exploration of the spermatic vessels which is best done with an intraabdominal exploration. Laparoscopy would not be practical in this patient since the groin is already open In this clinical setting, the incision could be extended superiorly and the peritoneal cavity entered at the level of the internal ring. If the testis is absent, the vessels can often be traced to the point of the blind-ending vas. If the testis is present, it will be found higher in the abdominal cavity even though it is truly a retroperitoneal structure

25. A 57-year-old man undergoes a left radical nephrectomy for renal cell cancer. Postoperatively, he has a prolonged ileus with nausea and vomiting and persistent abdominal pain radiating to the back. There is serous drainage from the wound. Abdominal ultrasound shows a retroperitoneal fluid collection. The next step should be:
A. analysis of wound fluid for pH and amylase,
B. analysis of wound fluid for creatinine and BUN.
C. surgical exploration and drainage,
D. gastrografin small bowel series,
E. gallium scan.
Answer=A
An unrecognized injury to the pancreas may result in a pancreatic fistula. These are usually accompanied by symptoms of pancreatitis with wound drainage of fluid with high pH and amylase content Radiologic studies will usually show fluid in the retroperitoneum. When drained adequately; the tract will usually heal spontaneously; but hyperalimentation may be required.

26. A 25-year-old man with carcinoma of the testis has undergone treatment with chemotherapy including bleomycin. He now requires lower abdominal surgery. The study most important in selecting general or regional anesthesia is:
A. SGOT, SGPT, LDH.
B. BUN, serum creatinine
C. expiratory spirometry,
D. electrocardiography,
E. complete blood count.
Answer=C
In 1978, Nygaard and associates reported on the death of 4/8 patients having an esophageal resection six weeks after bleomycin and radiation therapy. Subsequently Goldiner reported five deaths in 100 patients who received bleomycin prior to surgery. High oxygen concentration was implicated as the cause of respiratory failure, along with increased amounts of crystalloid. The only difference noted in Goldiner's patients who died was impairment of pulmonary function tests compared with normal pulmonary function in the patients who survived. It has been suggested that abnormal pulmonary function demonstrated by expiratory spirometry or formal pulmonary function tests; should be performed in every patient who is contemplating general anesthesia following bleomycin-containing chemotherapy.

27. A 54-year-old woman has severe pain in the suprapubic region and pain with adduction of her legs two weeks after a Marshall-Marchetti- Krantz bladder neck suspension. She has a "waddling'1 gait and the pain is reproduced by pressure on her pubic region. The study most likely to confirm the etiology of her pain is:
A. CT scan of pelvis,
B. plain x-ray of pelvis,
C. cystoscopy.
D. MR I scan of lumbosacral spine,
E. radionuclide bone scan.
Answer=E
Osteitis pubis is a poorly understood non-infectious inflammatory condition that may complicate up to 2.5% of all Marshall-Marchetti-Krantz procedures. It has been reported after transurethral collagen injections, transrectal prostate biopsy, TURP radical prostatectomy, cryotherapy of the prostate and other urological procedures. Exclusion of an infectious osteomyelitis must be considered, and radiographic findings are often not found early in the process. Radionuclide bone scan is an effective approach to early diagnosis.

28. Thiazide diuretics are:
A. useful in treating hypercalcemia.
B. contraindicated in calcium nephrolithiasis.
C. specifically indicated in idiopathic hypercalciuria.
D. inhibitors of sodium and chloride reabsorption in the collecting duct.
E. able to increase both renal blood flow and GFR.
Answer=C
Thiazide diuretics are able to diminish blood volume acutely by inhibiting sodium and chloride reabsorption at the distal convoluted tubule and thus diminish both renal blood flow and glomerular filtration rate. Thiazide diuretics are indicated in patients with calcium nephrolithiasis because they decrease urinary calcium. In nephrogenic and partial pituitary diabetes insipidus, thiazides produce an antidiuresis due to the sodium-depleting effects, causing a contraction of the extracellular fluid volume with less delivery of filtrate to the distal nephron. Furosemide, not thiazides, is useful in treating hypercalcemia.

29. The most important factor responsible for the frequent recurrence of UTIs in an otherwise healthy, young woman is:
A. adhesive fimbriae of uropathogens.
B. specific receptors on urothelial cells,
C. presence of pathogenic coliforms in stool,
D. feminine hygiene practices,
E. method of contraception.
Answer=B
Properties of uropathogens, sexual activity, feminine hygiene practices and the use of an IUD and/or spermicide may increase the frequency of UTIs in predisposed women, however they are not the most important etiologic factors. Many women have uropathogenic bacteria present in their bowel, use various contraceptive and hygiene methods, and are sexually active without developing infections. E. coli must colonize the peri-urethral area before an uncomplicated infection can occur. Coliform organisms are recovered only rarely from the region of the vaginal vestibule and external urethra in otherwise healthy women who do not have recurrent UTIs. It is postulated by most researchers that host factors rather than specific pathogenicity of the microorganisms are the prime determinants of colonization. E. coli tend to adhere more to vaginal and buccal epithelial; cells obtained from women with recurrent infection than to controls. This explains why certain women are prone to frequent recurrent infections. It would also explain why women with asymptomatic bacteruria are more prone to recurrent infection with marriage and pregnancy and would account for UTIs associated with intercourse, various contraceptive methods, etc., in highly susceptible women.

30. A 65-year-old man with metastatic prostate cancer is treated with an LH- RH agonist. Two years later, he has a worsening bone scan, retroperitoneal adenopathy, and a PSA level of 500 ng/mL. The plasma testosterone is 30 ng/d! (normal 300- 800 ng/dl). The therapy most likely to provide objective tumor regression is:
A. chemotherapy,
B. bilateral orchiectomy,
C. addition of an antiandrogen.
D. strontium-89,
E. prednisone.
Answer=A
Although there are few long-term complete responses using chemotherapy in patients with hormone refractory prostate cancer, objective responses with PSA reductions are found in approximately 50% to 70% of patients treated with estramustine and Vinblastine or mitozanthrone. Bilateral orchiectomy is of little value in a patient with castrate levels of testosterone. Addition of an anti-androgen in this situation can decrease the serum PSA level temporarily, but is less effective than chemotherapy. Strontium is effective for symptomatic control of bone pain. Steroids occasionally can be useful but usually only if combined with some other therapy such as Suramin or ketoconazole.

31.A 62-year-old man has new onset bilateral hydronephrosis four years after radical cystectomy and ileal conduit for bladder cancer. Upon catheterizing the stoma, 100 cc of urine is obtained. The most likely cause of the hydronephrosis is:
A. stomal stenosis,
B. chronic ureteral reflux.
C. ureteral obstruction due to recurrent cancer,
D. ureteral obstruction due to fibrosis,
E. antiperistaitic orientation of conduit.
Answer=A
Stomal stenosis is one of the most common long-term complications of ileal conduit diversion. Outlet stenosis leads to increased residual urine and high pressure in the conduit which is transmitted across refluxing ureters to the upper tracts resulting in hydronephrosis and upper tract deterioration Neither recurrent cancer nor simple postoperative fibrosis are likely to appear suddenly four years after surgery. Chronically ischemic conduits have small volumes and would not retain a residual of 100 cc of urine Urodynamic studies will show high pressure in the conduits

32. A 26-year-old infertile body builder with a five- year history of heavy anabolic steroid use is azoospermic 12 months after discontinuing all steroids. His serum testosterone is 150 ng/dl {normal 300- 900), and FSH is normal. The next step is:
A. observation.
B. testosterone replacement.
C. hCG.
D. testicular biopsy,
E. clomiphene citrate.
Answer=C
The non-medical use of anabolic steroids by athletes is a potentially significant cause of infertility in male adolescents and adults. It has been estimated that 3-12% of male athletes of high school age in the United States have used steroids. Infertility associated with anabolic steroid use commonly presents as oligospermia and azoospermia along with abnormalities of sperm motility and morphology. As with many of the other steroid side effects the semen parameter deficits are thought to be reversible and consequently the discontinuation of all steroids is an appropriate first course of therapy. In athletes who have been on chronic anabolic steroids, doubt had been cast on the theory that the endocrine imbalance induced by long-term metabolic steroids is reversible. Successful gonadotropin replacement is the best initial therapy for this particular patient.

33. A 58-year-old man with recurrent superficial bladder tumors previously treated with intravesical BCG is evaluated for a positive voided cytology. Cystoscopy discloses no intravesical tumors, random bladder biopsies are negative, and bilateral retrograde pyelograms and upper tract cytologies are normal. The next step is:
A. CT scan,
B. ureteroscopy.
C. repeat BCG.
D. prostatic urethral biopsy,
E. urinary NMP level.
Answer=D
A positive cytology after BCG therapy with a visually and biopsy negative bladder usually indicates extravesical recurrence either in the upper tracts or prostate Thorough evaluation of both sites is indicated in this patient Neither a CT scan nor ureteroscopy is indicated or would be helpful since the retrograde pyelograms and upper tract cytologies are normal Repeat BCG is not indicated unless there is documented evidence of tumor recurrence A urinary NMP level is not helpful since a voided cytology is already positive, and in any event will not help localize the tumor. Of the choices listed, prostate biopsy is the best choice to assess for the presence of prostatic TCC.

34. The bacterial virulence factor present in most pyelonephritogenic strains of E. coli is:
A. aerobactin.
B. hemolysin.
C. O-antigen.
D. K-antigen.
E. P-fimbria.
Answer=E
The two most important markers for E. coli virulence are mannose-resistant hemagglutination (MRHA) of human red blood cellsand P blood group-specific adhesions (P -fimbriae). The p-fimbria on the bacterial surface allow the bacteria to adhere to

urothelial cells. This adherence aids the ascent of the bacteria to the upper urinary tract.

35. A 12-year-old girl with spina bifida and an ileal conduit undergoes ileocecal continent diversion. She has persistent fecal incontinence with watery diarrhea six months after surgery. The best treatment is:
A. cholestyramine.
B. Vitamin B-12.
C. Lomotil,
D. oxybutynin.
E. Imodium.
Answer=A
Diarrhea after ileocecal resection is usually related to loss of the ileocecal valve and is a self-limited process that resolves in a few months. Severe and persisting diarrhea after ileocecal resection is a very uncommon complication which may be related to bile acid metabolism. Three types of bile acid-related diarrhea are described. Type I is due to anatomically-defined ileal pathology. Type II is due to bile acid malabsorption with an anatomically normal ileum. Type III is related to previous cholecystectomy or other gastrointestinal alteration. Cholestryramine. a non-absorbable anion exchange resin is effective in treating bile acid-related diarrhea.

36. A pelvic CT scan in a 34-year-old woman with recurrent UTIs reveals air in the bladder, focal bladder wall thickening, and indentation of the right lateral bladder wall. The most likely diagnosis is:
A. carcinoma of the sigmoid colon.
B. Crohn's disease,
C. carcinoma of the bladder,
D. diverticulitis.
E. emphysematous cystitis.
Answer=B
This patient has an enterovesical fistula due to Crohn's disease in this disorder, the bladder is indented on the right lateral and/or anterior aspect and gas can be seen in the bladder in 90% of cases on CT scan. Carcinoma of the sigmoid colon could cause this picture but the left wall of the bladder would be indented. Carcinoma of the bladder rarely causes enterovesical fistulae. Emphysematous cystitis is a generalized disease involving the entire bladder wall. She is young to have clinically significant diverticulitis

37. The most common primary malignant testis tumor of germinal origin in children is:
A. teratoma,
B. seminoma,
C. yolk sac tumor.
D. Leydig ceil tumor,
E. teratocarcinoma.
Answer=C
Yolk sac tumor accounts for approximately 60% of prepubertal testis tumors. Leydig cell tumors are of stromal origin

38. A 46-year-old woman has a six-year history of medically-controlled hypertension. An abdominal bruit and microscopic hematuria are noted on physical exam and urinalysis, respectively. IVP and cystoscopy are normal. Arteriography reveals a cirsoid arteriovenous malformation with multiple small channels in the upper pole of the right kidney. The R/L renal vein renin ratio is 1.4:1. The best management is:
A. antihypertensive therapy.
B. embolization.
C. angioplasty.
D. partial nephrectomy.
E. nephrectomy.
Answer=A
Hypertension and hematuria are the most common symptoms of congenital arteriovenous malformations. The natural history of this disease is variable. Significant hematuria or hypertension with lateralizing renal vein renins are indications for surgical or percutaneous therapy. However, patients with microscopic hematuria or controlled hypertension can be treated conservatively.

39. The spread of urinary extravasation secondary to urethral injury below the urogenital diaphragm, when associated with a tear in Buck's fascia, is limited by the fasciae of:
A. Denonvilliers' and Colles'.
B. Colies’ and Scarpa's.
C. Scarpa's and Denonvilliers'.
D. dartos and Colies',
E. dartos and Denonvilliers'.
Answer=B
When infradiaphragmatic urinary extravasation extends through Buck's fascia; it is limited only by Colles' fascia which attaches posteriorly at the triangular ligament and laterally at the fascia lata of the thigh. Colles' fascia is continuous anteriorly with Scarpa's fascia which extends superiorly to the coracoclavicular fascia. Therefore; both Colles' and Scarpa's fascia limit such anextravasation Such an extravasation, particularly when associated with infection (periurethral phlegmon), can result in edema and necrosis of the skin of the penis, scrotum, and anterior body wall.

40. The initial nephrostomy tube puncture site in a horseshoe kidney compared to that in a normally positioned kidney is more:
A. medial and through a posterior calyx,
B. lateral and through an anterior calyx,
C. media! and through an anterior calyx,
D. lateral and through a posterior calyx,
E. inferior and through an anterior calyx.
Answer=A.
Horseshoe kidneys often contain calculi, possibly as a result of high insertion of the ureter and relative stasis of urine Patients with small nonobstructing calculi in nondependent locations may be treated with ESWL However obstructing calculi or those that are large or in dependent locations are best treated with percutaneous techniques The initial puncture is more medial than that for normally positioned kidneys and should be placed through a posterior calyx.

41. The most important feature in predicting hydronephrosis in patients with myelodysplasia is:
A. significant vesicoureteral reflux,
B. detrusor hyperreflexia.
C. decreased detrusor compliance,
D. leak point pressure > 40 cm of water,
E. dyssynergic external sphincter.
Answer=D
While all of the factors listed can produce hydronephrosis, a leak pressure of > 40 cm of water, if left untreated, has uniformly been associated with progressive hydronephrosis. Patients with an elevated leak pressure should be treated aggressively with clean intermittent catheterization and anticholinergics or vesicostomy to prevent hydronephrosis.

42.The most prominent pharmacologic effect of imipramine on the lower urinary tract is:
A. central nervous system excitation,
B. direct smooth muscle inhibition,
C. alpha-adrenergic blockade,

D. blockade of norepinephrine synthesis,
E. opioid antagonism.
Answer=B
Imipramine's most prominent effect is direct smooth muscle inhibition. It also has a systemic anticholinergic effect, but this is not as clinically significant on the bladder as its direct relaxant effect. Imipramine also causes blockade of norepinephrine re
-uptake and this explains its alpha-adrenergic effect on the bladder neck.

43. A 47-year-old man has biopsy-proven squamous cell carcinoma invading the glans penis. Both groins are clinically negative. Initial treatment should be:
A. wide local excision,
B. distal penile amputation.
C. wide local excision and bilateral superficial and deep groin dissection.
D. distal penile amputation and bilateral superficial and deep groin dissection.
E. wide local excision and externa! radiation to both groins.
Answer=B
The most important initial mission of therapy of squamous cell carcinoma of the penis is adequate treatment of the primary lesion. This can be accomplished in this patient, achieving 2 cm margins of excision, by distal penectomy. In addition to excellent control of the primary lesion, pathologic evaluation of the lesion will allow a more informed decision as to the necessity and extent of surgical therapy of potentially involved nodal groups.

44. A seven-year-old girl has urgency, frequency, and diurnal enuresis. She is wet every day requiring clothes changes twice daily. Physical exam and urinalysis are normal. She is placed on oxybutynin 5 mg BID and timed voiding. She returns two weeks later and reports no change in the diurnal enuresis. The next step is:
A. MRI scan of the lumbosacral spine,
B. imipramine 25 mg BID.
C. videourodynamics.
D. voiding diary,
E. urethral dilation.
Answer=D
Diurnal enuresis occurs in 5% of seven-year-old school age children in most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature Urethral dilation is not indicated for the treatment of enuresis Some authors have suggested that an occult tethered cord is responsible for persistent diurnal enuresis. However, imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation

45. The treatment for urethral prolapse which results in the greatest success and lowest recurrence or complication rate is:
A. surgical excision.
B. suture-around-a-catheter technique,
C. cryosurgery,
D. vaginourethral plication,
E. topical estrogen application.
Answer=A.
Recurrence of urethral prolapse is highest with medical management. Urethral stricture; prolonged pain, or technical difficulty is associated with all except simple surgical excision or reduction, which is the most efficient form of management. The problem is most frequently seen in older women and young black girls.

46. A 23-year-old man with AIDS has a three- day history of painful right testicular swelling. The testis is diffusely swollen with a hard lesion in the upper pole. After two weeks of oral antibiotic therapy, the tenderness has resolved but the mass persists. Ultrasound of the scrotum shows a 1.5 cm mixed echogenic mass in the right testicle and a normal left testicle. Serum tumor markers and abdominal CT scan are normal. The next step is:
A. inguinal orchiectomy.
B. continue antibiotics and re-evaluate in two weeks.
C. PPD skin test.
D. scrotal exploration.
E. aspirate mass for culture.
Answer=A
Patients with the acquired immunodeficiency syndrome are at risk for various genitourinary infections and initial treatment of this patient with antibiotics is appropriate However, these patients may be at greater risk for testicular tumors and the presence of an intraparenchymal testicular mass merits inguinal exploration.

47. A 50-year-old African American woman has passed multiple calcium oxalate dihydrate stones. After initiating medical management with allopurinol and potassium citrate, repeat metabolic evaluation demonstrates serum calcium of 13.4 mg/dl, phosphorus 3.7 mg/dl, PTH 38 pg/d! {normal < 65 pg/dl), and urinary calcium of 598 mg per day {normal < 250 mg/day). The next step is:
A. neck exploration,
B. abdominal CT scan,
C. calcium load test,
D. chest CT scan,
E. fasting urinary calcium.
Answer=D
Calculi may be the initial feature of sarcoidosis in a small percentage of patients. In those individuals who present with hypercalcemia, normal serum phosphate, and normal serum PTH, sarcoidosis should be suspected. Increased Vitamin D levels in these patients will increase the intestinal absorption of calcium and suppress PTH secretion. Steroids will decrease intestinal absorption of calcium and should normalize both hypercalcemia and hypercalciuria

48. Compared to Intracavernous injection of papaverine for the treatment of erectile dysfunction, prostaglandin E1 is more likely to cause:
A. mild liver function abnormalities.
B. pain on injection.
C. priapism.
D. fibrosis.
E. systemic vasodilation.
Answer=B.
Other than an increased probability of pain on injection, prostaglandin E1 appears to have fewer complications than papaverine. It is cleared after one pass through the lungs, so that systemic effects are unlikely.
Lue TF. Broderick G: Evaluation and non-surgical management of erectile dysfunction and priapism, in Walsh PC. Retik AB

49. A 38-year-old woman with extensive prior pelvic radiation has a long left distal ureteral stricture. At the time of psoas hitch and ureteral reimplant, an omental wrap is planned. The vascular supply of the omentum is most reliably based upon which artery:
A. splenic.

B. gastroduodenal,
C. right gastroepiploic,
D. short gastric,
E. left gastroepiploic.
Answer=C
The blood supply of the omentum arises from the gastroepiploic arteries. The right gastroepiploic is best chosen for development of the wrap as the left is relatively small and more variable in its anatomy.

50. The neoplasm most frequently associated with bladder exstrophy is:
A. squamous cell carcinoma,
B. transitional cell carcinoma,
C. adenocarcinoma,
D. rhabdomyosarcoma,
E. nephrogenic adenoma.
Answer=C
Adenocarcinoma may develop in the untreated exstrophied bladder emphasizing the need for definitive therapy. Development of this type of neoplasm may be related to the differentiation of the bladder from the cloaca.

51. A 45-year-old woman has chronic indwelling polyurethane double-J stents for bilateral lower ureteral strictures from radiation therapy for cervical carcinoma. She experiences gross painless hematuria and cystoscopic examination reveals profuse bleeding from the right ureteral orifice. The best management is:
A. remove the right stent,
B. arteriogram.
C. CT scan of the abdomen,
D. exchange for softer stent,
E. exploratory laparotomy.
Answer=B
This clinical scenario should raise serious concerns a uretero-iliac fistula. This has been reported most commonly after the development of radiation-induced stricture disease for gynecologic malignancies and after aortoiliac reconstructive procedures. Arteriography may not be diagnostic, but, if it is, temporary balloon occlusion can be life-saving. Laparotomy would be extremely difficult in most previously irradiated patients.

52. A 45-year-old man with good erectile function has a failed renal transplant in the right iliac fossa with arterial anastomosis to the internal iliac artery. In order to avoid erectile dysfunction, the second allograft should be placed in the:
A. left renal fossa, end-end to the splenic artery,
B. right renal fossa, end-side to the aorta,
C. left iliac fossa, end-side to the external iliac artery,
D. left iliac fossa, end-end to the internal iliac artery,
E. right iliac fossa after transplant nephrectomy.
Answer=C
Many patients report a return to pre-illness levels of sexual activity after transplantation. To avoid erectile dysfunction after retransplantation, the internal iliac artery should not be used if it has been used on the contralateral side or if the surgical technique for the first transplant is unknown Bilateral internal iliac ligation can cause erectile dysfunction due to vascular insufficiency. It is best to use the contralateral iliac fossa with an end-side anastomosis to the external iliac artery.

53. A 58-year-old man has frequency and nocturia, an AUA Symptom Score of 22, peak urinary flow rate of 8 ml/sec, and postvoid residual of 200 ml. The prostate is 70 gm with a prominent median lobe. Sitting systolic blood pressure is 140 mm Hg. An orthostatic blood pressure change of 25 mm Hg is not associated with postural symptoms. He is concerned about developing ejaculatory dysfunction. The best treatment is:
A. finasteride.
B. doxazosin.
C. TUIP.
D. transurethral vaporization of the prostate.
E. TUMT.
Answer=B
Orthostatic hypotension is not a contraindication for alpha-blockers providing the blood pressure change is not associated with postural symptoms. The effectiveness of alpha-blockers is independent of prostate size. In those subjects with very large prostates, alpha-blockers are more effective than 5-alpha-reductase inhibitors. All surgical interventions may cause retrograde ejaculation.

54. The type of renal artery disease in which size and function of the involved kidney are best preserved is:
A. atherosclerosis,
B. medial fibroplasia,
C. intimal fibroplasia.
D. Takayasu's arteritis,
E. perimedial fibroplasia.
Answer=B
Medial fibroplasia of the renal artery rarely progresses to complete occlusion and it is unusual for patients to experience progressive loss of renal function. All of the other listed forms of renal artery disease carry a significant risk of progression to complete occlusion with loss of renal function.

55. A 28-year-old C-6 quadriplegic man with recurrent urosepsis cannot perform clean intermittent catheterization and has unreliable home help. He has failed two external sphincterotomies and developed urethral erosion following indwelling urethral catheter drainage. The best management is:
A. repeat external sphincterotomy,
B. vesicostomy.
C. ileal conduit urinary diversion,
D. continent urinary diversion,
E. ileovesicostomy.
Answer=E
An incontinent ileovesicostomy avoids the risks of chronic catheter drainage Continent urinary diversion is inappropriate in this social setting. External sphincterotomy has failed twice. Supravesical urinary diversion may involve more extensive surgery than necessary. Vesicostomy is difficult to manage due to difficulty in securing a collecting device on the abdominal wall.

56. A 46-year-old man with a high velocity gunshot wound to his right lower abdomen has a normal urinalysis. IVP reveals prompt bilateral excretion of contrast with no extravasation. During laparotomy a small bowel perforation and right iliac vein injury are repaired. The next step is:
A. no further evaluation,
B. ureteral exploration,
C. intravenous injection of indigo carmine,
D. bladder filling with methylene blue,
E. retrograde ureteropyelography.
Answer=B
The incidence of ureteral injuries from penetrating trauma is low. These injuries may be difficult to detect because the IVP is either normal or indeterminate in approximately 70% and hematuria may be absent in up to 45%. Retrograde ureteropyelography or injection of dyes may miss such injuries because the blast injury often results in delayed sloughing. A high index of suspicion is

necessary for diagnosis and the most accurate method is ureteral exploration

57. A four-year-old girl has had three episodes of culture-proven bacterial cystitis. A renal ultrasound shows right hydronephrosis and a normal left kidney. The next step in management is:
A. renal scan,
B. diuretic renogram.
C. IVP.
D. VCUG.
E. cystoscopy and retrograde pyelogram.
Answer=D
Whether the renal ultrasound is normal or abnormal, a VCUG is necessary in the child with a UTI to rule-out major abnormalities This patient has hydronephrosis and therefore should have a diuretic renal scan after the VCUG An IVP is an acceptable alternative following the VCUG.

58. A 66-year-old man is undergoing implantation of a semi-rigid penile prosthesis. During dilation of the corpora, blood is noted at the urethral meatus and a tear is seen in the distal urethra. The best management is:
A. abort implantation and place urethral catheter,
B. abort implantation and place suprapubic tube,
C. continue implantation and place urethral catheter,
D. continue implantation and repair urethra,
E. continue implantation and place suprapubic tube.
Answer=A
The most common location for urethral laceration during implantation of a penile prosthesis is in the distal urethra, usually at the meatus. It is not generally possible to repair these injuries, and the procedure should be aborted allowing the laceration to heal over a Foley catheter for three to five days. Suprapubic diversion is unnecessary, and re-operation can be performed in four to six weeks.

59. A 32- week- male fetus has bilateral hydroureteronephrosis and a thick-walled bladder on ultrasound. The most important information needed to determine further prenatal care is:
A. renal parenchymal echogenicity.
B. presence and timing of onset of oligohydramnios.
C. degree of bladder dilation and thickening.
D. urine electrolytes and beta-2 microglobuiin levels.
E. presence of a perinephric urinoma.
Answer=B
The most likely diagnosis in this fetus is posterior urethral valves based upon male sex, bilateral hydronephrosis, and a thick-walled bladder. The clinical outcome of a child with severe posterior urethral valves is most specifically predicted by the presence or absence of oligohydramnios and when the onset of oligohydramnios was noted to occur. Increased renal echogenicity alone is not predictive although in the setting of oligohydramnios, it is a poor prognostic indicator Bladder dilation is not a good prognostic indicator. Urinary electrolytes have been shown to be useful as an indicator of renal salvageability only in the setting of oligohydramnios and in early gestation (18 to 24 weeks).

60. The major complication from long-term oral androgenic agents is:
A. BPH.
B. gynecomastia,
C. hepatotoxicity.
D. weight gain,
E. infertility.
Answer=C
Oral androgens are frequently ineffective because of poor absorption from the Gl tract. They may cause weight gain (due to its steroidal effect), gynecomastia (due to the possibility of an increase in estrogen production from the exogenous androgens), and infertility (due to the suppressive effects of testosterone on LH and FSH). 8PH secondary to exogenous androgens is a potential risk, albeit unproved at this time. However, the major complication from these oral steroids is the development of hepatic dysfunction and carcinomas in the liver. Oral agents should not be routinely used. Transdermal or intramuscular administration are preferred modes of delivery.

61. Aldosterone secretion is stimulated by:
A. hyperkalemia and hyponatremia,
B. hyperkalemia and hypernatremia,
C. hypokalemia and hyponatremia,
D. hypokalemia and hypernatremia.
E. ACTH.
Answer=A
Aldosterone production and secretion are regulated largely by angiotensin II and by changes in the plasma concentrations of sodium and potassium. The role of ACTH in the control of aldosterone secretion is generally believed to be only permissive, subservient to the renin-angiotensin system and potassium. Direct infusion of potassium and depletion of body sodium are both potent physiologic stimuli for the secretion of aldosterone

62. A 24-year-old man has sudden onset of bilateral scrotal pain associated with mild nausea. Six days earlier he had seen his internist because of bilateral parotid gland swelling. On examination, the testicles are swollen and extremely tender to palpation. The most effective therapy for this condition is bed rest, scrotal elevation, and:
A. indomethacin.
B. steroids,
C. interferon,
D. estrogens,
E. gamma globulin.
Answer=C
This patient has mumps-associated orchitis, a condition noted in 18% of postpubertal patients This is usually a self-limited condition that resolves over a 7-10-day period However, in over half of the patients with orchitis, testicular atrophy occurs Recent work with interferon alpha-2B has shown that seven days of this therapy is capable of preventing testicular atrophy when administered after orchitis has developed. The bed rest and indomethacin will only help to decrease the pain of the orchitis but will not hasten its resolution or decrease the incidence of subsequent testicular atrophy. Gamma globulin, steroids, and diethylstilbestrol have been used to try to reduce the overall incidence of mumps orchitis. However, none of these modalities have been found to be of any benefit once orchitis has developed. Likewise none of them have been associated with limiting the subsequent occurrence of testicular atrophy.

63. A 65-year-old man has a 48-hour history of vomiting, diarrhea, and fever. He underwent a ureterosigmoidostomy at age 45 for bladder cancer. He is dehydrated, and his BP is 80/40 mm Hg. His serum electrolytes are sodium 148mEq/l, potassium 3.1mEq/l, chloride 112mEq/l, and carbon dioxide 9mEq/l. He is vigorously resuscitated with intravenous 0.9% sodium chloride and sodium bicarbonate. Within one hour, he suffers a cardiopulmonary arrest and dies. The most probable cause of death is:
A. hypernatremia.
B. hyponatremia.
C. hypercalcemia.

D. hyperkalemia.
E. hypokalemia.
Answer=E
Patients who have undergone ureterosigmoidostomy tend to have low normal serum potassium levels, but are significantly total body potassium depleted. Vigorous resuscitation of the hyperchloremic acidosis with intravenous sodium bicarbonate rapidly lowers serum potassium levels. As serum potassium is already low, acute hypokalemia leading to respiratory arrest can occur.

64. The operation for Peyronie's disease most likely to result in penile shortening is:
A. plaque excision, dermal grafting,
B. penile plication.
C. plaque excision, placement of an inflatable prosthesis,
D. plaque excision, placement of a semi- rigid prosthesis,
E. laser plaque destruction, vein patch grafting.
Answer=B
A variety of surgical procedures for correction of Peyronie's disease have evolved. The simplest of these is plication of the tunica albuginea on side opposite the fibrotic plaque While this can straighten the penis; shortening of the penis is a very real risk. All the other procedures involve destruction and/or removal of plaque followed by reconstruction and do not shorten the penis.

65. Cross-matching prior to kidney transplantation involves the incubation of:
A. donor whole blood with recipient serum,
B. donor lymphocytes with recipient serum,
C. recipient whole blood with donor serum,
D. recipient lymphocytes with donor serum,
E. donor red blood cells with recipient serum
Answer=B
Cross-matching is the incubation of recipient serum with donor lymphocytes. This is useful to detect preformed anti-donor cytotoxic antibodies in the recipient. A positive T-cell cross-match with a current serum sample from a recipient is a contraindication to kidney transplantation because of the high probability of hyperacute rejection

66. A one- week- old boy with a poor dribbling urinary stream has a distended bladder. A VCUG demonstrates typical posterior urethra! valves and ultrasound shows moderately severe hydroureteronephrosis. The urine is clear and the creatinine is 1 mg/dl. The best method of management is:
A. temporary urethral catheter, then valve ablation,
B. bilateral loop ureterostomies,
C. cutaneous vesicostomy.
D. suprapubic cystostomy tube placement,
E. transurethral valve ablation.
Answer=E
This infant is in no acute distress and has a slightly elevated creatinine The initial management should be as definitive as possible. Avoidance of urinary infection should also be paramount.

67. The primary effect of marked chronic diuresis upon the ureter is:
A. no change.
B. aperistalsis.
C. dilation.
D. atrophy.
E. fibrosis.
Answer=C
Diuresis induces ureteral dilation which is the result of elongation and an increase in diameter of the ureter. If prolonged, some hypertrophy of ureteral muscle occurs.

68. A 63-year-old woman with a history of transitional cell bladder carcinoma {Grade II, Stage T1) has gross, painless hematuria. IVP shows no abnormality. Voided urinary cytologies are consistent with transitional cell carcinoma, yet cystoscopically there are no visible tumors in the bladder, and random biopsies are negative. The next step should be:
A. flow cytometry of bladder washings,
B. cystoscopy and cytology in three months,
C. ureteral cytology.
D. CT scan of the pelvis,
E. ureteral and bladder cytology.
Answer=E
Transitional cell carcinoma is a disease of the entire urothelium and may involve the upper or lower tracts. With no significant lesion on the IVP. CT scan is unlikely to be of help. Ureteral cytologies alone may miss a source of positive cytology in the bladder necessitating simultaneous bladder and ureteral cytology. Flow cytometry of the bladder though possibly more objective than standard cytologies, does not rule out upper tract lesions. Delaying evaluation for three months may allow the tumor to progress.

69. A 51-year-old man with a neurogenic bladder has a continent urinary diversion using a detubularized right colon. Three months later, he is asymptomatic but a routine pouchogram shows Grade III/V right ureteral reflux. An IVP is normal. The best next step is:
A. right to left transureteroureterostomy,
B. reimplant the right ureter with a longer tunnel,
C. antibiotic prophylaxis,
D. pouch catheterization every two hours,
E. obsen/ation.
Answer=E
Although most continent urinary diversions are performed with a non-refluxing ureteral implant, there is no evidence that reflux is detrimental or progressive with shortterm follow-up. Unless this patient develops recurrent problems with infection or progressive renal deterioration, observation alone is appropriate.

70. A 45-year-old African-American man has a one-year history of progressive irritative voiding symptoms and general malaise. Urinalysis shows 15- 20 VVBC and 5 RBC/hpf. Urinary cytologies are negative. The serum creatinine is 4.5 mg/dl. Cystoscopy reveals an elongated urethra and inflammatory changes within the bladder. CT scan demonstrates bilateral hydronephrosis and encasement of the bladder, rectum, and both ureters by tissue that has negative Hounsfield units. The next step is:
A. high dose steroid therapy,
B. clean intermittent catheterization,
C. ileal conduit,
D. ureterolysis.
E. bilateral nephrostomy tubes.
Answer=E
This patient's clinical presentation is typical of pelvic lipomatosis and does not require tissue diagnosis. Treatment of the mass with radiotherapy or excision has not generally been successful. While there have been occasional reports of successful treatment with chronic antibacterial suppression this in general has not been a successful approach Steroid therapy has no role in pelvic lipomatosis. Supravesical diversion may be indicated as the ultimate treatment of choice in this man but the immediate therapy of his renal insufficiency can be accomplished by temporary nephrostomy drainage.

71. The pudendal nerve and artery run along the lateral wall of the ischiorectal fossa in a tunnel formed by splitting of the obturator fascia which is called:
A. the fascia of the ischial tuberosity,
B. the levator fascia.
C. Hunter's canal.
D. Alcock's canal,
E. the sciatic canal.
Answer=D
Alcock's pudendal canal is a fascial tunnel lateral to the levator ani and medial to the obturator internus muscle. Benjamin Alcock (born 1801, Ireland) was the first professor of anatomy at Queen's College, Cork.

72. A 40-year-old woman with periorbital xanthelasma develops severe abdominal pain and has a falling hematocrit. Renal arteriography reveals bilateral vascular renal tumors and a site of active hemorrhage from a right lower pole vessel. A CT scan shows negative Hounsfield units within both kidneys. The best management is:
A. angiographic embolization of the lower segmental vessel.
B. percutaneous evacuation of the hematoma.
C. laparotomy, evacuation of hematoma, and right partial nephrectomy.
D. laparotomy, evacuation of hematoma, and right nephrectomy.
E. radical right nephrectomy.
Answer=A
Renal angiomyolipoma is a benign tumor that may occur as an isolated phenomenon or as part of the syndrome associated with tuberous sclerosis. The preferred imaging modality is CT. The presence of fat is characteristic for an angiomyolipoma (negative Hounsfield units) Patients may present with sudden pain or hypotension because of massive hemorrhage within the lesion Patients with large angiomyolipomas and severe symptoms should undergo immediate selective arterial embolization, if possible, or conservative surgical therapy if embolization is not practical. Angiofarction should be the first attempted therapy in any patient having hemorrhage into any angiomyolipoma

73. A six-year-old boy with nocturnal enuresis has been treated with imipramine. dose last night and is lethargic this morning. The best plan is:
A. observation.
B. cardiac monitoring.
C. Kayexalate enema,
D. hemodialysis,
E. atropine.
Answer=B
Tricyclic antidepressants (TCAs) (e.g. imipramine) can cause toxicity at doses of 10-20 mg/kg. A 50 mg/kg dose is likely to be fatal. They are absorbed in the small bowel and have anticholinergic actions. Tissue levels, especially in myocardium, are much higher than serum levels. Toxic effects are central and peripheral anticholinergic actions (amine pump blockage that enhances catecholamine actions) as well as myocardial depression. The last is the most problematic, requiring cardiac monitoring. Emetics will be too late in this case, the urgent need is cardiac monitoring. Hemodialysis will take more than an hour to institute and is an incorrect priority. Kayexalate will not help. Atropine is contraindicated. Physostigmine, used in the past, doesn't help with the cardiac effects of TCAs and may cause its own rhythm disturbances.

74. A 75-year-old hypertensive woman has abdominal fullness and mild left flank pain. CT scan reveals a 14 cm left renal mass with a 2.5 cm para-aortic lymph node. Percutaneous biopsy of the renal mass reveals leiomyosarcoma. Metastatic evaluation is negative. Optimal therapy is:
A. doxorubicin-based chemotherapy.
B. radical nephrectomy and lymphadenectomy.
C. radical nephrectomy, lymphadenectomy, and external beam radiotherapy.
D. externa! beam radiotherapy.
E. radical nephrectomy, lymphadenectomy, and adjuvant chemotherapy.
Answer=B
Of all renal sarcomas, leiomyosarcoma is the most common. As with all sarcomas, optimal treatment is excision and, in this case, should include radical nephrectomy as well as removal of the regional lymph nodes. The utility of adjuvant therapy has not beenestablished but usually involves the use of doxorubicin-based chemotherapy. In this elderly patient who is at risk of heart disease, reserving such therapy for local recurrence would be the most reasonable approach.

75. During renal transplantation, vascular anastomosis with a Carrel aortic patch that encompasses the donor renal artery(ies) is indicated primarily for:
A. cadaveric kidneys with an atherosclerotic renal artery,
B. cadaveric kidneys from donors < six years old.
C. recipients under five years of age.
D. live donor kidneys with multiple arteries,
E. recipients with severe iliac atherosclerosis.
Answer=B.
Anastomosis of a Carrel aortic patch encompassing all donor arteries to the recipient common or external iliac artery is the recommended method of arterial anastomosis for cadaver kidneys from donors less than six years old. Without the use of an aortic cuff there is increased risk for stenosis/thrombosis. An aortic patch should never be taken in a living donor because of the increased risk to the donor Another indication for the Carrel aortic patch is a cadaveric kidney with multiple arteries

76. The first renal function parameter impaired by ureteral obstruction is:
A. ammonia excretion,
B. bicarbonate excretion,
C. potassium excretion,
D. water reabsorption,
E. chloride reabsorption.
Answer=D
Ureteral obstruction destroys the concentration gradient that causes water reabsorption in the distal tubule This loss of urinary concentrating ability is the earliest renal manifestation of ureteral obstruction.

77. A 72-year-old man with metastatic prostate cancer is treated with leuprolide and flutamide. Two months after beginning treatment, he reports anorexia, nausea, and dark-colored urine. Initial management should be to obtain liver function tests, an ultrasound of the biliary tree, and:
A. liver biopsy,
B. discontinue leuprolide.
C. bone scan.
D. CT scan of upper abdomen,
E. discontinue flutamide.
Answer=E
The association of flutamide and hepatotoxicity; fatal in six reported cases, is well-established. Patients may present with jaundice or merely symptoms of malaise. Laboratory investigations may demonstrate elevated transaminases as well as evidence of cholestatic jaundice. If recognized early and flutamide discontinued, in most cases hepatotoxicity will resolve. In

unrecognized cases, hepatic necrosis, hepatic encephalopathy, and death may result.

78. During the third trimester of pregnancy, the most common changes in renal function are:
A. elevated BUN; decreased creatinine,
B. elevated BUN; elevated creatinine,
C. decreased BUN; decreased creatinine,
D. decreased BUN; elevated creatinine.
E. unchanged BUN and creatinine.
Answer=C
In pregnancy, glomerular filtration rate increases about 50% as full-term approaches. This increase in GFR leads to a decrease in the serum BUN and creatinine Therefore, the normal values for BUN and creatinine are lower in pregnant women than they are in non-pregnant women

79. A 60-year-old woman has significant stress urinary incontinence. She underwent a transvaginal needle suspension three years ago and became more incontinent after the surgery. Her physical examination and urinalysis are normal. The abdominal leak point pressure is 38 cm H20. A fluoroscopic image shows no evidence of urethra! hypermobility. The best therapy is:
A. artificial urinary sphincter,
B. suprapubic bladder suspension,
C. collagen injection,
D. transvaginal bladder suspension,
E. biofeedback therapy.
Answer=C
The abdominal leak pressure study reveals incontinence due to intrinsic sphincter deficiency (ISD). Artificial sphincters are no longer routinely performed in women because of significant morbidity Suprapubic and vaginal suspensions can correct urethral hypermobility; but are much less likely to cure leakage from ISD. 8iofeedback; although useful for detrusor instability and mild stress incontinence, is rarely helpful for intrinsic sphincter deficiency defined by a low abdominal leak point pressure A pubovaginal sling procedure would also be an appropriate choice in this setting. Collagen use is less invasive and has a reasonablechance for success.

80. A 58-year-old man has recurrent left flank pain. A KUB demonstrates a 1 cm stone in the left upper pole calyx and IVP reveals that the calculus is in a partially obstructed caliceal diverticulum that fills with contrast. CT scan shows the caliceal diverticulum to be anteriorly located. There is no history of UTI. The next step is:
A. partial nephrectomy,
B. open marsupialization.
C. ESWL.
D. percutaneous nephrolithotomy,
E. laparoscopic diverticulectomy.
Answer=C
ESWL of a stone in a caliceal diverticulum has yielded clearance rates from 25-75%. More importantly, long-term symptomatic pain relief is often independent of the stone-free rate Recurrent infection is reported in up to 67% of those patients with a stone in a caliceal diverticulum Since this patient is uninfected and the diverticulum fills with contrast during IVP, ESWL is an attractive alternative which should provide symptomatic relief in this patient Although a percutaneous approach has been reported to be an effective modality for treating stones in a caliceal diverticulum, this patient has an anteriorly located diverticulum which would be difficult to access percutaneously.

81. Following a nephrectomy for calculous disease, a patient with a normal contralateral kidney has a urine output of 800 ml/day despite receiving 2000 ml I.V. fluids daily. Blood loss at nephrectomy was replaced. The serum sodium is 125mEq/l and the serum osmolality is 270mOsm/l. The urinary sodium is 20mEq/l, the serum potassium is 3.5mEq/l, and the urine osmolality is 480mOsm/l. The most likely cause of these findings is:
A. inappropriate ADH secretion.
B. acute tubular necrosis.
C. adrenal insufficiency.
D. dehydration.
E. exogenous water intoxication.
Answer=A
The syndrome of inappropriate ADH secretion (SIADH) may be associated with malignancy, pulmonary and CNS disorders, and certain drugs. Hyponatremia, decreased serum osmolarity (< 285mosm/l) with inappropriately increased urine osmolarity (> 300mosm/l), normal adrenal and thyroid function and urine sodium in excess of 20mEq/l characterize the process. A diagnosis of SIADH can only be made if a patient is euvolemic (as in the present case), as increased ADH secretion is physiologic in hypovolemic states. Adrenal insufficiency would result in increased serum potassium. Dehydration would result in mildhypernatremia and a higher urine osmolarity There is no reason, in the present case, to consider water intoxication given the administration of only 2000 ml of I.V. fluid daily.

82. A CT scan demonstrates a new 4 cm nodule in the left adrenal gland of a 58-year-old man who underwent a right radical nephrectomy for renal cell carcinoma eight years previously. He has mild hypertension that is well- controlled medically and is otherwise healthy. An MRI scan demonstrates the adrenal nodule to be isointense with liver on T2- weighted images. The next best step is:
A. clonidine suppression test.
B. MIBG scan.
C. needle biopsy.
D. adrenalectomy.
E. repeat CT scan in six months.
Answer=D
Many patients with renal cell carcinoma manifest asynchronous metastases which when solitary and resectable are best managed surgically, hence adrenalectomy is the best choice. This approach has been associated with prolonged disease-free survival especially when the interval between the initial diagnosis and metastasis is greater than one year Neither the clinical nor radiographic data in this case are suggestive of pheochromocytoma, which would be expected to be hyperintense compared with liver on T2-weighted images. A benign adrenal adenoma is possible, but in view of the history of renal cell carcinoma is a diagnosis of exclusion Waiting six months to determine if the lesion has change radiographically places the patient at risk for progressive metastatic disease. The malignant potential of adrenal tumors is notoriously difficult to determine on a needle biopsy.

83. A 27-year-old HIV positive man has acute left flank pain. Urinalysis reveals microscopic hematuria. Non- contrast helical CT scan demonstrates left hydroureteronephrosis with no evidence of stones. The medication most likely to cause his hydronephrosis is:
A. isoniazid.
B. rifampin.
C. indinavir.
D. trimethoprim-sulfamethoxazole.
E. AZT.

Answer=C
HIV patients have had dramatic clinical improvement with protease inhibitors These drugs (primarily indinavir) can result in as high as a 6% incidence of urinary calculi. These calculi may not be demonstrated in noncontrast helical CT scan or standard radiographic imaging studies Management should include hydration; discontinuation of medication for two to three days andconservative pain management. Most stones will pass spontaneously.

84. The medication which results in direct blockade of gonadal androgen synthesis is:
A. ketoconazole.
B. flutamide.
C. finasteride,
D. cyproterone,
E. leuprolide.
Answer=A
Ketoconazole directly blocks both gonadal and adrenal androgen synthesis. It is the most rapid medical means of inducing an anorchid state. Flutamide, a nonsteroidal anti-androgen and cyproterone. a steroidal anti-androgen, both block the receptor for androgens. Finasteride blocks 5-alpha-reductase and leuprolide is a luteinizing hormone-releasing hormone agonist which causes a fall in serum LH-RH levels with the indirect consequence being the blocking of gonadal androgen synthesis

85. In neonates with unilateral renal vein thrombosis, the most common long- term problem is:
A. nephrotic syndrome,
B. hypertension,
C. renal scarring,
D. glomerulonephritis,
E. recurrent renal infection.
Answer=B
Renal vein thrombosis in childhood most often presents with gross hematuria in association with a flank mass; thrombocytopenia, metabolic acidosis, tachypnea, pallor, failure to thrive, proteinuria, and diminished renal function Bilateral renal vein thrombosis in childhood is uncommon. Conservative (non-surgical, non-intervention a!) management results in a survival rate approaching 90%. Hypertension, the most common long-term problem encountered after unilateral renal vein thrombosis, may be seen in 15%. Delayed nephrectomy appears the most successful management for hypertension after unilateral renal vein thrombosis.

86. During fluoroscopy, the radiation hazard for the urologist is most effectively minimized by placing the x-ray tube:
A. close to and the image intensifier far from the patient,
B. above and the image intensifier below the patient,
C. close to and the image intensifier close to the patient,
D. below and the image intensifier above the patient,
E. far from and the image intensifier close to the patient.
Answer=D
Secondary scatter radiation is produced when a primary x-ray beam passes through a patient's body. This scatter radiation presents the greatest hazard for a urologist If the x-ray tube is mounted beneath the patient, most of the secondary radiation is absorbed by the patient. If the x-ray tube is mounted above the patient, most of the secondary radiation is aimed at the urologist, especially his face (corneas) and neck (thyroid). The image intensifier will absorb much of the scattered radiation if it is placed

87. A previously healthy 34-year-old woman is anuric eight hours following a Marshall- Marchetti- Krantz operation for stress urinary incontinence. Her urethral catheter irrigates easily and she does not respond to a fluid challenge. Preoperatively, her serum creatinine was 0.7 mg/dl. The study which will most likely establish the diagnosis is:
Answer=D: IVP.
Bilateral ureteral obstruction can occur following a Marshall-Marchetti-Krantz procedure Sutures can obstruct the intramural ureters bilaterally, particularly when the bladder base is elevated into the wound by an assistant's finger in the vagina. The most likely cause of this patient's anuria is bilateral ureteral obstruction. The study of choice to establish the diagnosis of bilateral ureteral obstruction in this setting is an IVP. Serum creatinine and urinary sodium concentration and osmolality will not help in this diagnosis Likewise, a VCUG is not warranted An isotope renal scan is not the study of choice to identify hydroureteronephrosis

88. The form of urinary tract obstruction most likely to be associated with renin-dependent hypertension is:
A. intermittent,
B. acute unilateral,
C. acute bilateral,
D. chronic unilateral
E. chronic bilateral.
Answer=B
The only form of urinary tract obstruction that may cause renin-mediated hypertension is acute unilateral hydronephrosis. Chronic bilateral hydronephrosis may also cause hypertension but it is volume related and is not associated with hyperreninemia. To establish that hydronephrosis is causing renin-mediated hypertension, divided renal vein renins should show lateralization to the hydronephrotic kidney with suppression of renin output from the normal kidney A peripheral plasma renin level, even when indexed against the 24-hour urinary sodium, is not a good screening test Weidmann reported eight patients with unilateral hydronephrosis and renin-mediated hypertension where the peripheral plasma renin levels were normal despite lateralizing renal vein renins The most common cause of renin-mediated hypertension, renal artery stenosis, should be ruled-out by arteriography.

89. A nine-year-old boy is in a motor vehicle accident. He has right flank pain and has voided spontaneously. Urinalysis and vita! signs are normal. Physical examination reveals a right flank contusion. Chest x- ray reveals a fracture of the right 12th rib. The next step is:
A. ultrasound.
B. CT scan,
C. observation
D. IVP.
E. renal scan.
Answer=B
Following blunt trauma, radiographic evaluation of the kidney can be omitted if there is no hematuria and no history of hypotension However, if there is a rib fracture or abnormalities on physical exam, a renal injury should be suspected. CT scan is the best imaging study to exclude injury.

90. Congenital androgen resistance syndromes are usually associated with:
A. reversible infertility,
B. elevated serum testosterone levels,
C. normal serum LH levels,
D. normal serum estradiol levels,
E. low serum FSH levels.
Answer=B
Congenital androgen resistance syndromes are generally associated with infertility and elevated serum testosterone; LH. and FSH levels. The syndromes are also usually associated with

elevated serum estradiol levels due to increased secretion by the testes.

91. A ten-year-old child was treated with Cytoxan chemotherapy and bone marrow transplantation for leukemia. Severe hematuria requiring transfusion develops. The most likely cause is:
A. leukemic infiltrates in the bladder,
B. bacterial cystitis,
C. graft versus host reaction,
D. acrolein.
E. thrombocytopenia.
Answer=D
Cyclophosphamide is given in large doses in the therapy of acute lymphocytic leukemia and in bone marrow transplantation. A urinary metabolite of cyclophosphamide; acrolein, is believed to be responsible for both hemorrhagic cystitis and bladder cancer. Patients treated with cyclophosphamide have up to a nine-fold increased risk of developing bladder cancer.

92. A 24-year-old sexually active homosexual man has a solitary erythematous nodule on the penile shaft. He does not have a urethral discharge. Purulent material is expressed from the nodule and culture on Thayer- Martin medium reveals oxidase positive colonies. The most likely diagnosis is:
A. primary syphilis.
B. gonorrhea.
C. chancroid.
D. lymphogranuloma venereum.
E. Kaposi's sarcoma.
Answer=B
This patient's presentation is lacking in the usual signs and symptoms of gonorrhea, but an oxidase positive culture on Thayer- Martin medium is diagnostic of Neisseria gonorrhea The lesion and other characteristics are not consistent with syphilis, chancroid, lymphogranuloma venereum, or Kaposi's sarcoma. Cutaneous lesions and accessory glandular infection may be the only manifestations of active gonorrhea.

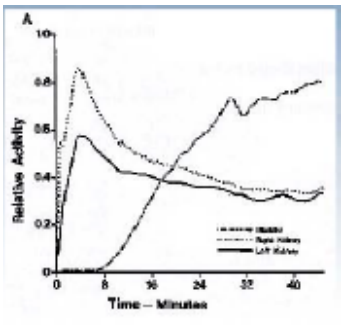
93. A 68-year-old man with Parkinson's disease underwent a TURP two years ago for nocturia, frequency, hesitancy, and urinary incontinence. His symptoms were not alleviated by the prostatectomy and his incontinence worsened. The most informative test would be:
A. videourodynamic study.
B. urethral pressure profilometry with fluoroscopy.
C. residual urine determination.
D. cystoscopy.
E. voiding flow rate and AUA Symptom Score.
Answer=A
Patients with Parkinson's disease most frequently experience urinary tract symptoms, including urinary incontinence, because of uninhibited bladder contractions The fact that this patient's incontinence worsened following a TURP raises the question as to whether he also has sphincteric incontinence The best way to evaluate both his bladder and his distal continence mechanism is with a videourodynamic study. Urethral pressure profilometry with fluoroscopy will not determine the status of uninhibited bladder contractions. Symptom score, residual urine determination, cystoscopy, and flow rate do not determine the presence of uninhibited bladder contractions

94. A 64-year-old man with BPH has dysuria, frequency, and hematuria following removal of a urethral catheter after a hip replacement. He is allergic to penicillin. A urine culture taken from the catheter at time of removal grew Enterococcus faecalis. The best treatment is:
A. cephalexin.
B. gentamicin.
C. norfloxacin.
D. clindamycin.
E. nitrofurantoin
Answer=E
Enterococci are the second most common cause of nosocomial UTIs after E. coli. Most urinary infections with these bacteria are catheter related. Enterococcus faecalis is by far the most common species. Enterococci faecalis is often susceptible to a variety of antibiotics but ampicillin; gentamicin, and vancomycin resistant strains pose major therapeutic problems. Most Enterococci are still sensitive to nitrofurantoin Catheterized patients should not be treated unless there is evidence of systemic infection. In this patient with a simple, lower urinary tract symptomatic cystitis secondary to catheterization, treatment is indicated

95. The most common etiology for ureteropelvic junction obstruction in childhood is:
A. extrinsic compression,
B. stone disease,
C. polar vessel.
D. congenital dysplastic segment,
E. ureteral valve.
Answer=D
Although extrinsic compression and polar vessels may cause ureteropelvic junction obstruction, the most common etiology by far is a congenital dysplastic segment. It is important to recognize this lesion and excise these segments so that the transmission of peristalsis can occur across the reconstructed ureteropelvic junction

96. Most Americans with clinically detectable uric acid stones have:
A. gout.
B. renal tubular acidosis,
C. disorders of purine metabolism,
D. elevated urinary uric acid levels,
E. normal serum uric acid levels.
Answer=E
The serum uric acid level in patients with uric acid stones is usually normal. Most patients do not have gout; most of the stones are located in the upper tracts. Disorders of purine metabolism have not been identified to account for the formation of most uric acid stones; and the urinary uric acid levels are usually normal Patients with uric acid stones have acid urine whereas patients with renal tubular acidosis usually have alkaline urine

97. A 56-year-old previously healthy woman develops hypertension that is poorly controlled with multipledrug antihypertensive therapy. The serum creatinine is 1.3 mg/dl. A technetium DTPA renal scan is done before and sixty minutes after a 50 mg oral dose of captopril. The time-activity curves are depicted below in Figures A (pre-captopril) and B (post-captopril). The next step in her evaluation should be:
A. differential renal vein plasma renin assays,
B. renal duplex ultrasound.
C. I.V.- renal digital subtraction angiogram,
D. renal arteriography.
E. peripheral plasma renin assays pre- and post-captopril.



Answer=D
A kidney with high grade renal artery stenosis exhibits impaired excretory function during converting enzyme inhibition due to interrupted autoregulation of the glomerular filtration rate (GFR) In patients with unilateral renal artery stenosis, there is no associated detectable change in renal function since overall GFR is maintained by the opposite healthy kidney. However, captopril-induced unilateral changes in renal function can be detected by isotope renography which has afforded a new, noninvasive, and relatively accurate screening test for renovascular hypertension The post-captopril renogram in this patient demonstrates significant impairment in the left renal uptake and excretion of isotope compared to the pre-captopril study. Recent studies have suggested a sensitivity of 80% and a specificity of 90%-1Q0% for this finding in patients with renovascular hypertension due to unilateral stenosis. Therefore, with a positive captopril renogram and a strongly suggestive clinical history, the appropriate next step is renal arteriography which is likely to reveal significant left renal artery stenosis in this patient

98. The best initial treatment of a 45-year-old unmarried man with an AUA Symptom Score of 25 and a peak flow rate of 7ml/sec is:
A. alpha-blocker.
B. finasteride.
C. transurethral incision of the prostate,
D. transurethral resection of the prostate,
E. laser ablation of the prostate.
Answer=A
The patient has severe urinary symptoms and a markedly reduced peak urinary flow rate. The most likely diagnosis is bladder outlet obstruction secondary to bladder neck hypertrophy or BPH Since the patient is relatively young and unmarried the effect of treatment on fertility must be considered. All of the surgical procedures may cause retrograde ejaculation. Finasteride is less effective than terazosin and precautions must be taken for those individuals planning to initiate a pregnancy. The tension of bladder neck and prostate smooth muscle is mediated by alpha-1 adrenoceptors. Alpha-blockers will improve both symptoms and peak flow rate.

99. During radical retropubic prostatectomy, a well-defined rectal laceration is noted. There is no fecal spillage. No preoperative bowel preparation was administered. This patient should be managed with completion of the prostatectomy and:
A. descending colostomy and Hartmann's pouch.
B. descending colostomy and mucus fistula.
C. primary closure of the laceration.
D. rectal lavage with antibiotic solution and closure.
E. temporary transverse loop colostomy.
ANSWER=C
Rectal injuries are reported to occur in less than 0.5% of radical prostatectomies. Therefore, routine preoperative bowel preparation is unnecessary. A two-layer closure of the rectal wall is sufficient in most cases and digital anal dilation may also be used. If the edges of the rectal wound are devitalized, the patient has received previous pelvic radiation, or there is significant fecal contamination, then a diverting colostomy with Hartmann's pouch should strongly be considered. A mucus fistula is not indicated in the absence of distal obstruction.

100. A 38-year-old azoospermic man with secondary infertility has an ejaculate volume of 0.3 ml. Post ejaculate urine contains no sperm. Serum testosterone and FSH are normal, both vasa are palpable, and testicular volume is normal. Transrectal ultrasonography reveals a normal prostate, ejaculatory ducts, and dilated seminal vesicles. The next step is:
A. ejaculatory duct cannulation.
B. testis biopsy,
C. vasography.
D. seminal vesicle aspiration,
E. renal ultrasound.
Answer=D
The differential diagnosis of low ejaculate volume azoospermia is ejaculatory duct obstruction, hypogonadism, vasal agenesis, ejaculatory failure; and testicular failure. Hypogonadism was excluded by a normal testosterone level and the patient has palpable vasa Retrograde ejaculation is not present because no sperm are in the post-ejaculate urine This patient has either testicular failure or an obstruction of the ejaculatory ducts. Seminal vesicle aspiration under transrectal ultrasound guidance will reveal numerous sperm if obstruction is present and is the least invasive method to diagnose this treatable lesion

101. An 82-year-old woman who lives in a nursing home complains of urinary urgency and incontinence. Neurologic examination is normal. Urinalysis is normal. Residual urine is 140 m! after voiding 160 ml. The most likely etiology of her symptoms is:
A. detrusor instability,
B. detrusor-sphincter dyssynergia.
C. decreased detrusor compliance,
D. detrusor instability with impaired contractility,
E. intrinsic sphincter deficiency.
Answer=D
Detrusor hyperactivity with impaired contractility is the most common cause of urinary incontinence in the frail elderly and presents as urge incontinence or unspecified incontinence with large postvoid residual urine Detrusor-sphincter dyssynergia is only seen in patients with neurologic disorders.

102. A 53-year-old woman underwent continent cutaneous urinary diversion six months ago. She is asymptomatic, performs clean intermittent catheterization every four hours, and obtains about 200 ml with each catheterization. A routine urine culture reveals 100,000cfu/ml of E. coli. The best treatment is:
A. culture-specific antibiotics for ten days,
B. urine acidification.
C. increase frequency of catheterization.
D. observation.
E. chronic antibiotic suppression.
Answer=D
Bacterial colonization of urinary reservoirs is common with 17/18 patients demonstrating >100,000 col/ml in one series. Because colonization frequently disappears spontaneously; no treatment is warranted More frequent catheterization would be indicated if reservoir pressures and volumes were higher at the time of catheterization

103. An 11-year-old boy has an impalpable left testis. The finding which proves left testicular absence is:
A. a blind-ending vas deferens,
B. hypertrophy of the right testis,
C. absence of the left kidney.
D. XY/XO karyotype,

E. blind-ending spermatic vessels.
Answer=E
Blind-ending spermatic vessels are the sine qua non of testicular absence, and exploration must be continued until they have been observed A blind-ending vas may simply reflect non-union with a distant testis Non-operative criteria are currently unable to prove monorchia

104. Severe hypercalcemia in a patient with acute or chronic renal failure is best treated with:
A. saline diuresis,
B. inorganic phosphate,
C. calcitonin,
D. dialysis,
E. steroids.
Answer=D
While hypercalcemia is rare in acute or chronic renal failure, it can occur This usually happens when patients with chronic renal failure develop massive parathyroid hypertrophy or are treated with calcium carbonate preparations to limit phosphate resorption from the gut because of the limited ability of the kidney to excrete calcium. Hypercalcemia in advanced renal failure responds best to dialysis Calcitonin is contraindicated, as is saline diuresis Phosphate will be poorly tolerated and steroids will not work in this setting.

105. In a 28-year-old woman with interstitial cystitis, sodium pentosan polysulfate (Elmiron) will:
A. decrease urinary frequency,
B. decrease dysuria.
C. decrease nocturia,
D. increase compliance,
E. increase voided volume.
Answer=E
A randomized double blind placebo controlled trial demonstrated that the only objective parameter influenced by Elmiron was an increase in voided volume. The increase in voided volume was only 20 ml.

106. A 52-year-old man has a partial penectomy for a poorly-differentiated squamous cell carcinoma of the penis invasive into the corpora cavernosa. A 2 cm inguinal lymph node is palpable in the right groin, and inguinal lymph node dissection is planned. The best way to decrease the postoperative complication of chronic leg edema in this patient is:
A. preservation of the saphenous vein.
B. division of the inguinal ligament during dissection.
C. transposition of the sartorius muscle over the vessels after dissection.
D. limiting the dissection to superficial to Scarpa's fascia,
E. maintaining the plane of dissection anterior to the femoral vessels.
Answer=E
One of the most debilitating potential long-term complications of inguinal lymph node dissection is lower extremity edema. Edema is partially preventable by adherence to good operative technique. Preservation of the saphenous vein may not be a major influencing factor but ligation at the femoral triangle does not decrease edema. The operation can be performed without division of the inguinal ligament in most patients. Transposition of the sartorius muscle may help cover the bare surface of the femoral vessels but does not affect edema. The dissection should proceed inferior to Scarpa's fascia to decrease the incidence of flap necrosis. Dissection lateral and behind the femoral vessels should be avoided because of the presence of large lymphatic channels in this area

107. During implantation of an artificial urinary sphincter in a man, the most common intraoperative injury is to the:
A. urethra during dissection of the bulbo-spongiosus.
B. urethra at the attachment to the corporal bodies,
C. bladder during reservoir placement,
D. femoral vessels during tube routing,
E. spermatic cord during pump placement.
Answer=B
Urethral injury is the most common untoward event during placement of an artificial sphincter. The most difficult point in the dissection and the most frequent site of injury is where the urethra is attached to the septum of the corporal bodies at the 12 o'clock position.

108. In patients with posterior urethral valves* renal dysplasia is most commonly associated with:
A. vesicoureteral reflux,
B. hydronephrosis,
C. renal duplication,
D. ureteral dilation,
E. urinary ascites.
Answer=A
Vesicoureteral reflux and renal dysplasia often co-exist in patients with posterior urethral valves, especially in cases with unilateral reflux into a nonfunctioning kidney. This association most commonly affects the left kidney where a defect in ureteral bud embryogenesis is thought to be a significant etiological factor.

109. Three hours after being hit in the perineum, an 11-year-old boy has a swollen, ecchymotic scrotum. He has a normal urinalysis. The best next step is:
A. scrota! exploration,
B. isotope testicular scan,
C. scrotal ultrasound,
D. retrograde urethrogram,
E. scrota! elevation, ice, and bedrest.
Answer=C
A scrotal ultrasound will be the most helpful of the above studies to determine the presence of hematocele and if the tunica albuginea of the testicles is intact These findings will direct further management

110. A 28-year-old man undergoes orchiectomy for anaplastic seminoma. Abdominal CT scan and chest x -ray are normal. Beta- hCG falls from 500 to 12mlU/ml (normal < 2mlU/ml) and AFP falls from 300 to 225 ng/ml (normal < 25 ng/ml) ten days post-orchiectomy. The next step is:
A. repeat tumor markers in two weeks,
B. retroperitoneal lymphadenectomy.
C. cisplatinum-based chemotherapy,
D. ultrasound of contralateral testis,
E. radiation therapy.
Answer=C
Seminoma does not produce alpha-fetoprotein and thus this patient must be managed as a nonseminomatous germ cell tumor (NSGCT) Avery valuable prognostic tool in the staging of clinically Stage I (TxNGMG) NSGCT is the rate of decline of serum tumor markers (AFP and beta-hCG). The half-life of beta-hCG is 18-36 hours and it is five to seven days for AFP. If tumor markers do not decline at an appropriate rate as in this case, the suspicion of residual disease must be high. While persistently elevated beta-hCG can be unrelated to residual disease, persistent elevations of AFP almost always portend residual disease. In this circumstance, optimal therapy is cis-platinum-based chemotherapy as almost all patients treated with retroperitoneal lymphadenectomy will relapse.

111. A 24-year-old woman has formed five ammonium acid urate stones. The test which will best elucidate the underlying cause of her recurrent stone disease is:

A. ammonium chloride load,
B. thiazide challenge,
C. urinary phenolphthalein.
D. arterial blood gas.
E. nitroprusside test.

Answer=C

Ammonium acid urate stones are often seen in patients with significant metabolic acidosis. A common cause of acidosis in young women is chronic laxative abuse which will cause gastrointestinal loss of fluid and electrolytes with subsequent intracellular acidosis. Laxative abuse should be suspected whenever a young woman has ammonium urate renal calculi with non-infected urine Phenolphthalein is a urinary marker for laxative abuse

112. The most useful procedure to correct a recurrent 2-1/2 cm stricture of an intrarenal ureteropelvic junction following a previously unsuccessful pyeloplasty is:

A. dismembered pyeloplasty.
B. ureterocalycostomy.
C. Foley Y-V plasty.
D. Davis intubated ureterotomy,
E. spiral flap pyeloplasty.

Answer=B

Recurrent ureteropelvic junction obstruction is usually associated with a significant amount of periureteral and peripelvic fibrosis When the pelvis is also intrarenal and there is an associated stricture of the upper ureter, dismembered or flap pyeloplasty will not provide a good repair. A Davis intubated ureterotomy is a possibility, but it is not a highly reliable procedure. Ureterocalycostomy is the best choice. It is important to resect renal cortex adjacent to the calyx before performing the ureterocalycostomy.

113. Patients on chronic hemodialysis may have a tendency to bleed excessively during surgery. This is due to:

A. thrombocytopenia,
B. inadequate levels of Vitamin K.
C. hypofibrinogenemia.
D. thromboplastin deficiency,
E. a qualitative platelet defect.

Answer=E

In patients with chronic renal failure, blood clotting is abnormal because of platelet dysfunction resulting from a deficiency of von Willebrand factor multimers and the presence of small molecules that impair platelet function. Because of the qualitative platelet defect, the most sensitive test to predict the occurrence of bleeding is the determination of a bleeding time.

114. Which is best suited to the Wallace (conjoined) type of uretero- intestinal anastomosis for urinary diversion:

A. colon conduits.
B. revision of ureteroileal anastomosis,
C. dilated ureters,
D. history of bladder CIS.
E. prior radiation therapy.

Answer=C

The utility of the Wallace technique is most apparent in cases of dilated ureters requiring larger areas of the ileal segment for individual anastomosis. The Wallace anastomosis has the lowest complication rate of any of the ureterointestinal anastomotic techniques. Stricture formation is approximately 3%, deterioration of the upper tracts is 4%, and leakage is 2%. The Wallace technique is not recommended for patients with carcinoma in situ or who have a high likelihood of recurrent tumor in the ureter

115. A 58-year-old insulin- dependent diabetic man with a history of two superficial transitional cell carcinomas (TCC) of the bladder treated by TURBT has gross hematuria. The serum creatinine level is 1.7 mg/dl. At cystoscopy, the bladder appears normal except for blood coming from the right ureteral orifice. An IVP reveals prompt bilateral renal function and a radiolucent filling defect in the lower third of the right ureter. Ureteroscopy confirms the presence of a tumor, and biopsy reveals Grade 3 TCC. The preferred management is:

A. ureteral stent and intravesical chemotherapy,
B. ureteroscopic tumor resection,
C. distal ureterectomy and reimplant,
D. segmental ureterectomy and transureteroureterostomy,
E. right nephroureterectomy.

Answer=C

Distal ureteral tumors should be treated by distal ureterectomy and ureteroneocystostomy assuming no evidence of multifocality. Transureteroureterostomy is not recommended with urothelial malignancy. Endourological techniques are indicated only for lower grade tumors. Nephroureterectomy. although reducing the risk of ipsilateral superficial recurrence; yields no survival advantage over distal ureterectomy and would reduce renal reserve in a patient with diabetes and renal insufficiency.

116. A 50-year-old man who underwent radical cystoprostatectomy and orthoptic bladder reconstruction five years ago develops congestive heart failure. The best treatment for his persistent hyperchloremic metabolic acidosis is:

A. furosemide.
B. Bicitra.
C. sodium bicarbonate.
D. chiorpromazine.
E. Polycitra.

Answer=D

The treatment of hyperchloremic metabolic acidosis requires administration of alkalizing agents or blockers of chloride transport. In patients in whom excessive sodium loads are undesirable, nicotinic acid or chlorpromazine may be administered to control the acidosis Nicotinic acid and chlorpromazine inhibit cyclic AMP and thereby impede chloride transport

117. A 28-year-old man with primary infertility has a microdeletion of the DAZ region of the Y chromosome (AZFc). One semen analysis reveals azoospermia. His wife is scheduled for in vitro fertilization. Prior to testicular sperm extraction, he should have:

A. serum dihydrotestosterone level,
B. repeat semen analysis with centrifugation,
C. renal ultrasound.
D. X chromosome analysis,
E. transrectal ultrasound.

Answer=B

Y chromosome microdeletions are common in severe male infertility. Although many men with AZFc deletions are azoospermic, occasional sperm are often found in the ejaculate and may obviate the need for testicular sperm extraction. Renal prostatic and X chromosome abnormalities are rarely found in association with Y microdeletions.

118. A 32-year-old man has pulsatile retroperitoneal bleeding immediately after Veress needle insufflation and trocar

placement in the infraumbilical region for a laparoscopic procedure. The vessel most likely injured is the:
A. umbilical artery,
B. epigastric artery,
C. left iliac vein,
D. right iliac artery,
E. sacral artery.
Answer=D
Vascular complications of laparoscopy are relatively uncommon but can be life-threatening. Complications most commonly occur during Veress needle or peri-umbilical trocar placement. They are likely to affect either the right iliac artery, left iliac vein or inferior vena cava because of their location under the umbilicus. Pulsatile bleeding suggests an arterial source.

119. A 28-year-old man develops a persistent painless erection two weeks following a bicycle accident. Physical examination demonstrates perineal ecchymosis. Aspiration of corporal blood reveals pO2 = 85 mm Hg, pCO2 = 40 mm Hg, pH = 7.41. The best management is:
A. oral terbutaline.
B. intracavernous phenylephrine,
C. cavernosal-glanular shunt,
D. selective arterial embolization,
E. cavernosai-spongiosum shunt.
Answer=D
Priapism that follows blunt perineal trauma is usually high flow or non-ischemic. This is caused by arterial rupture directly into cavernous tissues. The presentation is usually delayed from the initial event. Aspiration of corporal blood demonstrates satisfactory oxygenation. Venous channels may partly compensate for high flow and there is usually no pain associated with this condition. This can be corrected with selective embolization of the offending arterial branch. Most patients regain adequate erection after embolization, but this may take up to several months. In a small percentage of patients, the erection may resolve spontaneously.

120. A 65-year-old woman has left flank pain and gross hematuria. CT scans demonstrate a 1.5 cm pulmonary nodule, a 7 cm enhancing solid left renal mass, and normal right kidney. There is no other clinical or radiograph evidence of metastasis. The best management is:
A. systemic immunotherapy,
B. combination immunotherapy and chemotherapy,
C. nephrectomy and systemic immunotherapy,
D. renal angioinfarction and systemic immunotherapy,
E. nephrectomy and pulmonary resection.
Answer=E
Surgical excision is the treatment of choice for patients with renal cell carcinoma and a solitary metastasis, producing five-year disease-free survivals of 35%. Systemic therapy alone (immunotherapy with or without chemotherapy) produces complete responses in only up to 15% of patients, and responses in the primary tumor are rare. Angioinfarction may be a useful surgical adjunct in large tumors, those which extend into the renal hilum, those associated with vena caval thrombi or for palliation of pain or bleeding, but is not a good form of local control from the cancer standpoint.

121. A 59-year-old woman has acute pyelonephritis. Her WBC is 18,000, serum creatinine is 1.2 mg/dl and urine culture shows > 100,000 colonies/cc of Enterococcus faecalis. Pending sensitivities, antibiotic treatment should be:
A. ciprofloxacin 500 mg p.o. b.i.d.
B. amoxicillin 2 gm p.o. t.i.d.
C. ampicillin 1 gm IV q4 hours and gentamicin 350 mg IV qday.
D. ceftazidime 1 gm IV q8 hours.
E. ampicillin 1 gm IV q4 hours and gentamicin 80 mg IV q8 hours.
Answer=C
Treatment of Enterococcus infections should involve two synergistically active agents, typically a penicillin derivative and an aminoglycoside. Single daily dosing of aminoglycosides (at a dose of 5 mg/kg/day for gentamicin) provides optimum concentration- dependent bactericidal activity, longer dosing intervals due to post-antibiotic effect, and prevention of bacterial adaptive resistance. With longer dosage intervals, toxicity may also be delayed or reduced.

122. The most important contraindication to orthophosphate therapy in patients with recurrent renal lithiasis is:
A. diarrhea,
B. osteodystrophy,
C. immature bone development,
D. hypercalciuria.
E. urea-splitting urinary infection.
Answer=E
Orthophosphate therapy is contraindicated in patients with nephrolithiasis complicated by UTI and in those individuals with renal insufficiency This could accelerate struvite stone formation and be dangerous for patients with renal insufficiency who may have increased serum phosphate levels.

123. Metabolic alkalosis is most frequently associated with:
A. hyperventilation.
B. chronic obstructive pulmonary disease.
C. hyperkalemia.
D. hypokalemia.
E. hypocarbia.
Answer=D
When metabolic alkalosis occurs the body's response is increased pC02 and pH Hypoventilation occurs thus increasing pC02 Metabolic alkalosis often is associated with volume reduction which stimulates the renin-angiotensin-aldosterone system which promotes K+ excretion. Metabolic alkalosis is seldom due to COPD.

124. A 28-year-old man undergoes a right radical orchiectomy for pure seminoma. The serum AFP and hCG are normal, and an abdominal CT scan reveals a 4 cm mass in the interaortocaval region. Tomograms of the chest reveal three nodules at the base of the right lung. The best management is:
A. needle biopsy of pulmonary nodule.
B. radiation to the retroperitoneum and chest.
C. retroperitoneal lymphadenectomy followed by platinum-based chemotherapy.
D. retroperitoneal lymphadenectomy followed by chest radiotherapy,
E. platinum-based chemotherapy.
ANSWER=E
Patients with Stage III seminomatous tumor should receive cis-platinum based chemotherapy. Radiation therapy should not be utilized as the initial treatment in patients with Stage III seminomas, as the radiation therapy may diminish bone marrow reserves and preclude effective chemotherapy. The options of radiation therapy or resection remain open for residual masses following combination chemotherapy.

125. Following the removal of a frontal lobe meningioma, detrusor function will most likely be:
A. coordinated with urgency incontinence.
B. coordinated but incomplete with increased residua! volume.
C. uncoordinated due to detrusor-sphincter dyssynergia.
D. uncoordinated due to detrusor areflexia.
E. uncoordinated due to primary bladder neck dyssynergia.

Answer=A
Areas above the brainstem are generally inhibitory in function relative to detrusor function. Injuries as a result of trauma or surgery to areas above the brainstem usually result in precipitous; complete voiding related to detrusor hyperreflexia with sphincteric coordination facilitated by an intact brainstem

126. Five days after intercourse, a 40-year-old man develops a painful necrotic penile ulcer and painful inguinal lymphadenopathy. Gram stain of an exudate from the lesion reveals gram-negative coccobacillus. Dark-field examination and Tzanck smears are negative. The treatment of choice is:
A. penicillin.
B. tetracycline.
C. acyclovir.
D. erythromycin.
E. sulfisoxazole.
Answer=D
This patient has chancroid. The drug of choice is erythromycin 500 mg p.o. q.i.d. for seven days or ceftriaxone 250 mg I.M. once The other antibiotics with not be effective to eliminate the organism which is Hemophilus ducreyi Acyclovir is effective against the herpes virus

127. A 35-year-old man has persistent retroperitoneal lymphadenopathy after cis-platinum-based chemotherapy for nonseminomatous germ cell tumor. The parameter most predictive of finding only fibrosis in the retroperitoneum is:
A. normalization of serum hCG.
B. 50% reduction in size of the mass on CT scan,
C. pure embryonal cell carcinoma in the primary tumor,
D. normalization of serum alpha-fetoprotein,
E. teratoma in the primary tumor.
Answer=C
Patients with a nonseminomatous germ cell tumor who have a greater than 90% reduction in the size of the retroperitoneal mass with chemotherapy and have no teratomatous elements in their tumor are almost never found to have either viable cancer or teratoma in the residual mass at the time of retroperitoneal lymph node resection. Normalization of the serum markers does not predict for the presence of fibrosis

128. The validity of a creatinine clearance test can best be determined by simultaneously measuring or calculating the:
A. total creatinine excreted,
B. total sodium excreted,
C. total urea excreted,
D. total urine volume excreted,
E. average urine osmolality.
Answer=A
The total amount of creatinine excreted each 24 hours is dependent upon muscle mass and is generally constant An incomplete collection is suggested by an incorrect amount of total creatinine in a 24-hour specimen; the normal production of creatinine is 1.0 mg/kg/hr

129. The structure found immediately lateral to the femoral artery as it passes posterior to the inguinal ligament is the:
A. sartorius muscle.
B. femoral vein.
C. femora! nerve.
D. iliohypogastric nerve.
E. lateral femoral cutaneous nerve.
Answer=C
The anatomy of the femoral canal from lateral to medial is the femoral nerve: the femoral artery, the femoral vein and lymphatic channels. This is important when blood draws from the femoral vein or artery are considered Dissection in the area of the femoral canal should also consider the saphenous vein junction with the femoral vein just inferior to the inguinal ligament

130. A 34-year-old HIV positive man has fever, dysuria, and diarrhea. Physical examination reveals a tender prostate; the urine culture is negative. Transrectal ultrasonography demonstrates multiple hypoechoic lesions confined to the posterior prostate gland. The next step is administration of broad-spectrum I.V. antibiotics and:
A. insertion of suprapubic tube,
B. insertion of urethral catheter,
C. needle aspiration of the prostate for culture,
D. transurethral unroofing of abscess,
E. transrectal drainage of abscess.
Answer=D
The incidence of prostatic abscess has declined but it is still seen in immunodeficient patients such as those with immunodeficiency virus (HIV). Transrectal ultrasonography is now the imaging modality of choice for the evaluation of patients with suspected prostatic abscess. Antibiotic therapy alone will not be sufficient if an abscess is found. Suprapubic urinary diversion is appropriate in patients with acute bacterial prostatitis without an abscess. Transurethral unroofing is the treatment of choice in patients with an abscess confined to the prostate gland while open drainage is required for patients with more e)(tensive lesions

131. A seven-year-old boy who has had three prior hypospadias repairs develops a small mid-shaft urethrocutaneous fistula. A fistula repair is performed without urinary diversion. On the fifth day, the fistula reopens and persists despite three weeks of urethral catheter drainage. The best treatment is:
A. immediate surgical reclosure of the fistula,
B. placement of a suprapubic tube,
C. bury penis in scrotum.
D. replace the urethral catheter for another 3-4 weeks,
E. delay surgical repair for at least six months.
Answer=E
In a boy who has had three hypospadias repairs with the probability of marked fibrosis, options "a" through” d would not be acceptable and would certainly lead to the continuation of the urethrocutaneous fistula. Immediate surgical reclosure of the fistula is to be condemned, particularly one-month post-surgery when there is maximum edema and poor tissue tensile strength. A waiting period of at least six months or perhaps longer is prudent to allow for neovascularity, subsidence of edema, and the best chance at reclosure. In all urethrocutaneous fistulas that do not close, distal obstruction must be ruled out as well as the presence of a distal urethral diverticulum acting as an obstruction

132. The presence of nephrogenic rests (nodular renal blastema) may predispose to:
A. adenocarcinoma.
B. sarcoma.
C. adenoma,
D. hamartoma.
E. Wilms' tumor.
Answer=E
Lesions apparently representing Wilms' tumor precursors have been recognized for many years. They have been found in 1% of kidneys in infants on postmortem and in 30-40% of kidneys removed for Wilms1 tumor. The terminology for these lesions has evolved over the years. These lesions were previously termed persistent nodular renal blastema, Wilms tumor or nephroblastomatosis if there were diffuse lesions. The current preferred term is nephrogenic rest which is defined as foci of

abnormally persistent nephrogenic cells that can form a Wilms1 tumor. Beckwith has estimated that approximately 1 in SO nephrogenic rests will develop into Wilms1 tumor.

133. A 24-year-old sexually active, asymptomatic woman on oral contraceptives has a long history of foul-smelling urine. Her urine pH is 8.0. The most likely diagnosis is:
A. asymptomatic bacteriuria with urease producing organism.
B. trichomonal vaginitis.
C. progestational effect of birth control pill.
D. excessive dietary red meat.
E. vegetarian diet.
Answer=E
The urologist is very often presented with an asymptomatic patient who complains only of foul-smelling urine. Afoul odor is suggestive of infection but may be caused by vaginitis (in which case the urine actually does not have foul odor) or consumption of food such as asparagus. The specific gravity is not helpful. An alkaline pH over 8.0 is suggestive of a urease producing microorganism such as Proteus or Providentia (which would be very unlikely in an asymptomatic 24-year-old patient) or may also be caused by a vegetarian diet. Many people have recently switched their diet and now subsist on a virtually totally vegetarian diet and tend to have an alkaline urine. This fact is very helpful to urologists in helping to explain a concern over a patient's urine odor. The hydrogen ion content of the urine is caused principally by sulfur containing amino acids in animal proteins. The cause of the odor is unknown

134. A 13-year-old boy with progressive onset of left testicular pain for six hours and nausea should:
A. be observed for four hours to assess symptom progression.
B. undergo scrota! exploration.
C. be given anti-inflammatory medication and rest.
D. be given antibiotic treatment.
E. undergo inguinal cord block and testicular detorsion.
Answer=B
This boy's age; and the presence of nausea, are indications of the high likelihood of testicular torsion as a cause of his symptoms, Surgical exploration is both diagnostic and therapeutic. Observation, even for a short time, is not appropriate and provides little benefit in terms of allowing better clinical separation of causes of his symptoms. In this setting the diagnosis of torsion of one of the appendages should only be made operatively. There is no evidence to support the diagnosis of this being of an infectious etiology. Testicular detorsion risks incomplete therapy and a false sense of improvement due to the cord block.

135. Calcium oxalate calculi appear on MRI scan as:
A. high intensity T1 weighted image,
B. low intensity T2 weighted image,
C. low core intensity image,
D. poorly visualized image,
E. bright bone-like signal image.
Answer=D
Non-contrast CT images can identify all calcium oxalate calculi as bright intensity signals similar to bone. Additionally, uric acid and matrix calculi that are frequently radiolucent on scout radiographs easily image with CT. MRI scans are unable to reliably identify calcium oxalate or other stone types.

136. The principal mechanism for urinary excretion of an increased acid load in chronic acidosis is:
A. reabsorption of filtered HCO3.
B. increased sodium reabsorption in the collecting duct.
C. increased aldosterone secretion.
D. increased formation of ammonia.
E. stimulation of collecting duct carbonic anhydrase.
Answer=D
An adaptive increase in collecting tubule cell ammonia formation is the principal mechanism for the excretion of increased acid loads in chronic acidosis Although enhanced sodium reabsorption and aldosterone may increase hydrogen ion secretion in the collecting duel buffer availability (e.g.; ammonia) is still the limiting factor. The majority of filtered bicarbonate is reabsorbed in the proximal tubule under normal circumstances, with little capability for increased reabsorption with increased acid load. The collecting duct epithelium does not contain carbonic anhydrase.

137. The antimicrobial agent which can be used at the usual dosage in an azotemic patient is:
A. nitrofurantoin.
B. sulfisoxazoie.
C. doxycycline.
D. trimethoprim.
E. diflucan.
Answer=C
All the antibiotics listed including most tetracycline's; except doxycycline. are excreted primarily in the urine and their blood levels increase in the presence of renal insufficiency Doxycycline is excreted mainly in the feces and does not require consideration for a dosage reduction in an azotemic patient.

138. A 36-year-old woman undergoes partial nephrectomy with placement of an internal ureteral stent. Postoperative KUB demonstrates proper stent position. One week following surgery, urine draining from the flank increases from 50 to 1100 cc/day and remains 800 cc/day for the next three days. The next step is:
A. placement of urethral catheter.
B. surgical exploration.
C. observation.
D. remove ureteral stent.
E. placement of percutaneous nephrostomy.
Answer=A
The above situation describes a urine leak following a partial nephrectomy which may occur in up to 17% of patients. An internal ureteral stent was placed and KUB confirmed the appropriate placement of the stent following surgery. In this situation, the ongoing significant urine leak may be due to obstruction of the stent or to reflux of urine from the bladder. Thus; placing a urethral catheter should be the first step. If the urinary leakage does not decrease; then stent removal and replacement are appropriate. Placement of a percutaneous nephrostomy tube should be avoided unless there is obstruction and a new stent cannot be passed from below. Surgical exploration is not warranted unless all other efforts are unsuccessful.

139. Proliferation of the prostate in vitro is inhibited by:
A. transforming growth factor-beta,
B. keratinocyte growth factor,
C. basic fibroblast growth factor,
D. epidermal growth factor,
E. insulin growth factor.
Answer=A
All of the growth factors except transforming growth factor-beta act as pro static mitogens in vitro.

140. A 25-year-old man has a fractured pelvis. After an infusion of 2500 ml of Ringer's lactate, his BP is 70/40 mm Hg and his urinary output is 20 ml/hour. Two units of type specific blood are given over 45 minutes. The blood pressure increases to 85/50 mm Hg, and the CVP increases from 3 to 6 cm H20. He should be given an infusion of:

A. Ringer's lactate,
B. fresh frozen plasma.
C. 0.5 normal saline,
D. more blood,
E. sodium bicarbonate.
Answer=D
If more than 2500-3000 ml of fluid are needed for resuscitation blood and blood products will be required. Continued hypotension and a CVP less than < 6 cm H20 are most consistent with hypovolemic shock The most appropriate therapy is the infusion of more blood. Fresh frozen plasma will have to be administered soon because of dilutional coagulopathy which often occurs after massive transfusions, If over 10 units of blood are administered; platelet packs may be necessary. Sodium bicarbonate infusion will correct metabolic acidosis, but this patient's primary problem remains hypovolemic shock.

141. Pretransplant bilateral nephrectomy is most commonly necessary for:
A. glomerulonephritis,
B. polycystic kidney disease,
C. medullary sponge kidney,
D. diabetes.
E. recurrent pyelonephritis.
Answer=E
Of the conditions listed: the only solid indication for pretransplant nephrectomy is the patient with a well-documented history of pyelonephritis. Pretreatment bilateral nephrectomy is most important in those patients with active infection. The hazards of active infection and immunosuppression certainly justify the risk There is no indication for nephrectomy in the patient with glomerulonephritis Patients with polycystic disease do not require bilateral nephrectomy prior to transplantation unless the kidneys are infected, contain abscesses or are too large. Cases of diabetes and medullary cystic disease not associated with UTI need not have pretransplant nephrectomy.

142. A 30-year-old man involved in an automobile accident sustains fracture dislocations of vertebral bodies T- 12, L- 1, and L- 2. One year after the injury, the most likely sequela is:
A. detrusor-sphincter dyssynergia.
B. autonomic dysreflexia,
C. retrograde ejaculation,
D. detrusor areflexia.
E. lack of seminal fluid emission.
Answer=D
The sacral (S-2 to S-4) spinal cord parasympathetic cell bodies are anatomically located at the level of vertebrae T-12; L-1 and L- 2. A spinal cord injury at this level would be expected to injure the parasympathetic outflow to the bladder and the correct answer is. therefore, detrusor areflexia. Lesions above the level of the sacral spinal cord can be associated with detrusor-sphincter dyssynergia In order for autonomic dysreflexia to occur the lesion must be above the sympathetic outflow tract which is much higher than the injury sustained by this patient The sympathetic innervation is not affected by this lesion and, therefore, retrograde ejaculation does not occur. However, many of these patients are anejaculatory due to interruption of afferent nerve supply.

143. A child with renal insufficiency, acidosis, and a small, noncompliant bladder requires bladder augmentation. The most physiologically acceptable gastrointestinal segment to use is:
A. stomach.
B. jejunum.
C. ileum.
D. cecum.
E. sigmoid.
Answer=A
Renal insufficiency and acidosis are relative contraindications to the use of small or large bowel segments for bladder augmentation because these segments absorb urinary electrolytes. Gastric mucosa, on the other hand, actually secretes chloride and functions as a barrier to its absorption and to the absorption of ammonium as well. After gastrocystoplasty. serum chloride levels are shown to decrease and C02 levels increase in patients with renal insufficiency In this subgroup of patients requiring bladder augmentation stomach appears to be the most appropriate intestinal segment.

144. In a prepubertal male with bilateral intra-abdominal testes the most probable response to exogenous hCG {human chorionic gonadotrophin) would be:
A. increase in serum testosterone,
B. decrease in serum testosterone,
C. no change in serum testosterone,
D. bilateral testicular descent,
E. unilateral testicular descent.
Answer=A
Administration of hCG to a prepubertal male with bilateral intra-abdominal undescended testes would not likely result in descent of either testis. It would be expected to stimulate increased testosterone production by intra-abdominal testes. In the presence of a normal male phenotype and karyotype and an elevated serum FSH; the failure in rise of serum testosterone in response to hCG would imply anarchism and would obviate the need for abdominal exploration.

145. A 30-year-old woman with slowly progressive multiple sclerosis has urinary frequency, urgency, and incontinence. Residual urine is 800 ml. Three months after the initiation of clean intermittent catheterization, she complains of recurrent incontinence associated with an acute exacerbation of her multiple sclerosis requiring treatment by steroids. The incontinence is most likely due to:
A. noncompliance with catheterization,
B. detrusor-sphincter dyssynergia.
C. hyperreflexic detrusor dysfunction,
D. overflow incontinence,
E. neuropathic urethral dysfunction.
Answer=C
Approximately one-third of patients with multiple sclerosis who are in retention go on to develop hyperreflexic bladder dysfunction and require anticholinergic agents Urinary symptoms and urodynamic findings often change as the disease progresses and, for this reason, these patients must be carefully followed with the knowledge that therapy may need to be periodically altered.

146. A 62-year-old woman with metastatic renal cancer develops lethargy and confusion. Laboratory studies reveal: serum calcium 15.6 mg/dl, phosphorus 4.4 mg/dl, and creatinine 2.0 mg/dl. The best initial therapy is:
A. mithramycin.
B. furosemide.
C. steroids.
D. intravenous saline.
E. calcitonin.
Answer=D
This patient manifests the paraneoplastic syndrome of hypercalcemia. The hypercalcemia needs to be controlled promptly; and therapy should begin with hydration with isotonic sodium chloride Hydration should result in an increase in calcium excretion and lowering of serum calcium levels to acceptable

ranges. All other therapies are appropriate and effective if saline hydration is inadequate to return serum calcium to safe levels.

147. One day following percutaneous nephrostolithotomy, hemiacidrin irrigation is initiated through the nephrostomy tube to manage residual fragments. Three hours after starting the irrigation, the patient becomes confused and hypotensive. The most likely cause of this condition is:

A. hypermagnesemia.
B. hypocalcemia.
C. hypoxia.
D. sepsis.
E. hypokalemia.
Answer=D

Patients undergoing hemiacidrin irrigation for struvite calculi are susceptible to the absorption of magnesium, especially if the pressures in the renal pelvis become excessive. However, it is rare that toxic levels of magnesium could occur within the time frame stated in the above clinical scenario. Although antibiotics are routinely used peri-operatively in the treatment of struvite calculi, urinary sepsis may occur. Hypotension and confusion are common sequela of sepsis. Blood cultures would offer the best diagnostic study in this situation Routine blood studies including electrolytes and serum magnesium should also be obtained but are less likely to provide the diagnosis. Acute calcium imbalance rarely occurs as the result of hemiacidrin irrigation or following percutaneous nephrolithotomy.

148. Thirty hours after a successful left percutaneous nephrolithotomy, a 35-year-old man has a fever of 100.2 degrees Fahrenheit, ileus, urine mixed with feces from the nephrostomy tube, and bloody stools. His WBC is 18,000/cu mm. Nephrostogram demonstrates that the tube is transcolonic. The next steps are to administer parenteral antibiotics, prohibit food by mouth, and:

A. observe the patient.
B. withdraw the nephrostomy tube into the renal pelvis,
C. place a second nephrostomy tube,
D. perform a colostomy,
E. close the bowel perforation.
Answer=B

After withdrawing the nephrostomy tube into the renal pelvis, the colonic fistula will usually close in a few days if discovered promptly. Alternatively, the nephrostomy tube can be completely removed and a double-J stent inserted. Surgical closure or colostomy should be reserved for cases that have persistent fever and evidence of abscess formation.

149. A 57-year-old man has recurrent urinary stones. Previous stone analyses revealed both calcium oxalate monohydrate and uric acid. The underlying metabolic abnormality can best be determined with:

A. urine pH.
B. serum uric acid,
C. urinary uric acid crystals.
D. 24-hour urinary uric acid,
E. sodium nitroprusside test.
Answer=A

Patients with gouty diathesis can form either uric acid or calcium stones The most important diagnostic test in patients with gouty diathesis is urine pH; with these patients consistently having a urine pH below 5 Alkalization with potassium citrate will prevent formation of both uric acid and calcium oxalate stones in patients with gouty diathesis

150. A 24-year-old man undergoes a left inguinal orchiectomy for removal of a Leydig cell tumor of the testis. CT scan of the abdomen is negative. The most appropriate management is:

A. cis-platinum-based chemotherapy,
B. retroperitoneal lymphadenectomy.
C. subdiaphragmatic radiation therapy,
D. contralateral testis biopsy,
E. expectant therapy with periodic evaluations.
Answer=E

Most interstitial (Leydig) cell tumors are benign and confined to the testis As a result, an inguinal orchiectomy is definitive therapy and aggressive adjuvant intervention is not indicated Patients with these tumors can be followed with periodic evaluations consisting of endocrine studies and computed tomography of the retroperitoneum.

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aua 2001

1. A 64-year-old man undergoes 12 weekly bladder instillations of BCG after transurethral resection of a high-grade Stage T1(A) transitional cell carcinoma. Six weeks after receiving his last treatment, he undergoes a cystoscopy and IVP which are normal; however, a voided cytology shows highly atypical ceils suspicious for malignancy. The next step is:

A. bilateral ureteral catheterization and barbotage for cytology,
B. cold cup biopsy of the prostatic urethra,
C. brush biopsy of both upper collecting systems,
D. repeat cystoscopy with bladder biopsy and IVP in six weeks,
E. administration of monthly BCG instillations for one year.
Answer= D

Almost all persistently positive cytologies in the first six months after BCG treatment for T1 or Tis disease are due to disease in the bladder, and in this setting an extensive search for extravesical disease is not indicated. In addition, cytologies may continue to revert to normal for three months after the last BCG treatment. Repeat cystoscopy, upper tract evaluation, and bladder biopsy is the most effective way to detect a recurrence. Disease can also recur in the prostatic urethra; however, transurethral bladder biopsy is the most effective means by which to make the diagnosis.

2. Cadaveric kidneys are procured from a 52-year-old woman with a five-year history of hypertension controlled with a converting enzyme inhibitor. She died of a cerebral hemorrhage. The terminal serum creatinine was 1.2 mg/dl. The kidneys measured 12 cm each. Renal biopsies demonstrate 3% glomerulosclerosis on the right and 8% on the left. Both renal arteries are normal. The best use of these kidneys is to:

A. transplant the right, discard the left due to poor biopsy.
B. discard them due to history of hypertension.
C. discard them due to death from cerebral hemorrhage.
D. transplant both kidneys into a single recipient.
E. transplant each kidney into a separate recipient.
Answer= E

The shortage of donor organs is the main factor limiting the number of kidney transplants. This has resulted in an expansion of criteria used to assess donor organs. The extremes of donor age represent the largest opportunity for expanding the donor pool. Potential donors with diseases formerly considered contraindications to donation are now being considered as kidney donors. In such cases kidney biopsies are performed and should demonstrate < 10% glomerulosclerosis, as well as the absence of interstitial fibrosis or small vessel disease. Such kidneys can be successfully transplanted with reasonable outcomes.

3. In the diagnostic evaluation of excess cortisol secretion, the administration of 2 mg of dexamethasone q.i.d. (high dose) for two days results in:

A. no suppression of urinary corticosteroid secretion in normal patients.
B. suppression to less than half the baseline in patients with adrenal hyperplasia.
C. suppression to less than half the baseline in patients with benign cortical adenoma.
D. suppression to less than half the baseline in patients with adrenal carcinoma.
E. increased urinary secretion in patients with adrenal carcinoma.
Answer= B

The dexamethasone suppression test is known to have a false positive rate of approximately 20%. However, false negative tests are rare. Dexamethasone administration should result in suppression of plasma cortisol values (50% of pretreatment value), urine 17-hydroxysteroids and urine free cortisol in patients with Cushing's Syndrome. Pituitary imaging with CT or MRI will disclose an adenoma in 50% of such cases. Cortisol levels fail to fall to these levels in patients with adrenal carcinoma or ectopic ACTH secretion.

4. The formation of calcium oxalate stones following small bowel bypass surgery is primarily due to:

A. increased endogenous oxalate production,
B. increased intestinal calcium absorption,
C. increased intestinal oxalate absorption,
D. chronic dehydration.
E. hyperuricosuria.
Answer= C

Enteric hyperoxaluria is often found in patients with extensive bowel disease or resection of the small intestine, in the presence of an intact colon Fat malabsorption in these patients will bind with calcium to form calcium soaps, thereby leaving less calcium available to bind free oxalate in the small bowel. Moreover, the malabsorption of fatty acids and bowel salts will also increase the colonic permeability to oxalate. Therefore, increased intestinal permeability to oxalate as well as increased free oxalate availability will lead to increased oxalate absorption from the colon with subsequent hyperoxaluria. In addition, to hyperoxaluria, these patients will often have low urine volumes due to fluid lasses from chronic diarrhea as well as hypocitraturia, secondary to metabolic acidosis.

5. A 70-year-old woman has a painful bulging mass per vagina. She denies any urinary incontinence. Physical examination reveals a Grade IV cystocele that requires frequent daytime manual reductions when walking. The best management is:

A. videourodynamics.
B. videourodynamics with a pessary in place,
C. repair of cystocele.
D. repair of cystocele with simultaneous sling procedure,
E. observation.
Answer= B

Preoperative urodynamics with and without prolapse reduction is essential for making the correct diagnosis of masked stress incontinence in women with urogenital prolapse. This occurs in approximately 50% of women with urogenital prolapse. The decision to perform a concomitant prophylactic anti-incontinence procedure should be tailored to individual urodynamic findings.

6. A 55-year-old man with an enlarged prostate but no previous voiding symptoms undergoes an abdominoperineal resection for rectal carcinoma. When the indwelling urethral catheter is removed one week postoperatively, he voids with a weak stream and has over 400 ml residual urine. The best management is:

A. bethanechol.
B. TURP.
C. clean intermittent catheterization,
D. indwelling urethral catheter,
E. terazosin.
Answer= C

Urinary retention in this middle-aged man is most likely due to interruption of the neural input to the bladder due to the abdominoperineal resection. In nearly 5-10% of patients, detrusor areflexia is permanent. Intermittent self-catheterization offers the least morbid and most effective treatment. Transurethral resection of the prostate is likely to result in urinary incontinence because of the effects of the neural injury on external sphincter function. Although alpha-blockers such as terazosin can reduce outlet resistance, in the presence of detrusor areflexia, incomplete bladder emptying will persist. Bethanechol will not improve bladder contractility. Chronic indwelling catheters should always be avoided because of significant long-term risks.

7. During an uneventful living-related donor nephrectomy, the kidney becomes noticeably soft. The next step is:

A. remove the kidney as rapidly as possible,
B. administer systemic heparin,
C. apply papaverine to the renal artery,
D. administer systemic dopamine,
E. administer furosemide.
Answer= C
Renal artery spasm is the usual cause for softening of the kidney during transplantation surgery. Topical papaverine reduces the magnitude of vascular spasm.

8. Alpha-fetoprotein is most frequently elevated in:
A. choriocarcinoma,
B. carcinoma of the breast,
C. bronchogenic carcinoma,
D. hepatocellular carcinoma,
E. mature testicular teratoma
Answer= D
Elevated serum alpha-fetoprotein levels have been reported in patients with hepatocellular, pancreatic, gastric, and pulmonary carcinomas as well as benign liver conditions such as hepatitis and cirrhosis AFP is produced by yolk sac elements in patients with germ cell tumors. These should not be present in patients with mature teratoma or choriocarcinoma.

9. Administration of ciprofloxacin may affect metabolism of:
A. heparin.
B. digoxin.
C. coumadin.
D. theophylline.
E. Dilantin.
Answer= D
Quinolone administration may interfere with metabolism of xanthines (i.e. theophylline or caffeine). The effect varies among the quinolones, but is most pronounced with enoxacin and less so with ciprofloxacin.

10. The consequence of DDAVP when used to treat nocturnal enuresis is:
A. increased urine osmolality,
B. decreased urinary sodium,
C. down-regulation of vasopressin receptors,
D. mild hyponatremia,
E. mild hyperkalemia
Answer= A
Desmopressin (DDAVP), a vasopressin analogue, is substitutional therapy for nocturnal enuresis due to an absent nocturnal boost of endogenous vasopressin. Moffatt et al found an absolute dryness rate of 25% with this treatment and substantial improvement in a much higher percentage. Desmopressin increases urine osmolality. It does not suppress endogenous vasopressin Electrolyte studies show no consistent alteration. Hourly nocturnal urine production drops. Chronic usage up-regulates vasopressin receptors.

11. A 47-year-old man whose father died of prostate cancer presents for a prostatic evaluation. The most appropriate management is an annual digital rectal examination:
A. with serum PSA beginning now.
B. beginning now.
C. with serum PSA and transrectal ultrasonography beginning now.
D. beginning at age 50 years.
E. with serum PSA determination beginning at 50 years of age.
Answer= B
Both the American Urological Association and the American Cancer Society recommend that ail men 50 years of age or older with a life expectancy of 10 years or more undergo an annual evaluation consisting of a digital rectal examination and serum PSA determination Transrectal ultrasonography is utilized for those men with an abnormal digital rectal examination or an elevated serum PSA concentration. Individuals who are at high risk for developing prostate cancer (men who are African American or have a family history) should begin this evaluation at age 40 years.

12. During the past two years, a 45-year-old paraplegic man requires clean intermittent self-catheterization. He uses proper technique three to four times daily, obtaining 650 ml each time. He has asymptomatic pyuria and bacilluria that is not treated. About every two months he develops a febrile urinary infection that is treated with antibiotics. Cystoscopy shows no stones and there is moderate bladder neck obstruction. There is no reflux. The most appropriate management is:
A. suprapubic cystostomy.
B. indwelling urethral catheter,
C. transurethral prostatic resection,
D. chronic antibiotic administration.
E. increasing the frequency of catheterization to six times daily.
Answer= E
Clean intermittent catheterization (C.I.C.) should be performed as often as necessary (about six times daily in this case) to keep the residual volume below 400 ml. Lapides1concept has been that good blood supply to the bladder is important to maintaining resistance to infection and that volumes above 400 ml lead to overdistention and high intravesical pressures that impede capillary perfusion. Anderson has shown lower infection rates on an every four hour catheterization schedule compared to an every eight hour schedule. Antibiotics are not routinely necessary for asymptomatic bacteriuria. Prophylactic antimicrobials do not reduce the risk of clinical urinary infections in patients on C.I.C. While TURP maybe of value in establishing reflex voiding and a balanced bladder, it should not be done empirically in case the obstruction is due to sphincteric dyssynergia and the bladder-neck should not be resected Temporary suprapubic cystostomy would be indicated for such complications as severe urethritis or epididymitis. A urethral catheter would be used briefly to manage a temporary inability to self-catheterize but is not a good long-term management option for this patient.

13. A ten-year-old boy is receiving cefotetan for an abdominal infection. He has chronic renal insufficiency secondary to reflux nephropathy with a serum creatinine of 3.0 mg/dl. Appropriate management is to:
A. discontinue cefotetan.
B. switch to cefoperazone.
C. administer Vitamin K,
D. decrease cefotetan dose by 50%.
E. increase cefotetan dosing interval.
Answer= C
Cefotetan is metabolized by the liver. No dosage adjustment is needed in patients with renal insufficiency. This cephalosporin can exert a warfarin like effect prolonging the prothrombin time and has the potential to cause hypoprothrombinemia. This complication is a particular risk for patients with renal or liver disease and administration of Vitamin Kean circumvent this side effect.

14. A 42-year-old man had a right radical nephrectomy two years ago for a Stage T3aNoJVtx renal cell carcinoma. He now has right hip pain. Bone scan shows intense uptake in the right hip area and plain films of the right femur show a 3.5 cm lytic lesion. The next step is:
A. external beam radiation to the femur.
B. strontium-39.
C. internal fixation of the femur,
D. pain management,
E. systemic immunotherapy.
Answer= C

Approximately 50% of patients with mufti-organ metastases from renai cell carcinoma exhibit evidence of skeletal involvement. It has been estimated that between 15% and 30% of such skeletal lesions are solitary. Eighty percent of skeletal metastases occur in the axial skeleton, thoracic/lumbar spine, and pelvis. When long bones are involved, only the proximal portions are characteristic targets for metastatic disease. Surgical treatment of bony metastases is indicated for weight-bearing bones with lytic lesions greater than 3 cm. Internal stabilization or replacement of the destroyed periarticular segment often results in significant pain relief and tremendously improves the patient's quality of life.

15. A 44-year-old man with invasive bladder cancer undergoes a radical cystectomy and ileal conduit urinary diversion. An ileocutaneous fistula develops on the seventh postoperative day and is managed by nasogastric suction and total parenteral nutrition. He tolerates the total parenteral nutrition well but two weeks later has a sudden onset of hyperglycemia. The most common cause for this event is:

A. subclinical diabetes,
B. insulin resistance,
C. hepatic insufficiency,
D. adrenal insufficiency,
E. infection.
Answer= E

A septic focus is the most common cause for the acute onset of hyperglycemia in a patient previously tolerating total parenteral nutrition The hyperglycemia should be managed by subcutaneous insulin or by adding insulin to the parenteral nutrition solution in addition, investigations should be initiated to identify a site of infection.

16. Which of the following is most frequently associated with renal angiomyolipoma:

A. congenital aniridia,
B. tuberous sclerosis,
C. von Hippel-Lindau disease,
D. neurofibromatosis.
E. MEN II.
Answer= B

Angiomyolipomas occur in between 40-80% of patients with tuberous sclerosis. They are often detected incidentally in patients undergoing CT scans or ultrasounds but may present with sudden pain and hypotension due to hemorrhage.

17. A 22-year-old man involved in an automobile accident is evaluated for multi-system trauma. A peritoneal tap is negative and his vital signs are stable. A contrast-enhanced CT scan shows complete enhancement of both kidneys, a 2 cm laceration in the lower pole of the left kidney, and a 4 cm x 5 cm left perinephric hematoma. A 3 cm splenic laceration that does not extend to the hilum is also seen. His vital signs remain stable after the transfusion of one unit of packed cells, and he is managed nonoperatively. Ten days later, he develops acute abdominal pain. On physical examination, he is diaphoretic and has a rigid abdomen. His temperature is 101 degrees Fahrenheit, pulse 120/min, and blood pressure is 90/70 mm Hg. This clinical condition is most likely due to:

A. delayed sepsis,
B. persistent urinary extravasation,
C. secondary renal hemorrhage,
D. delayed splenic hemorrhage,
E. secondary hypertension.
Answer= D

Associated organ injury is common in patients with renal trauma. Nonrenal trauma accounts for the majority of the morbidity and mortality which occurs in such patients. As in the case described, CT allows staging of renal injury and detection of associated organ injury. Nonoperative management of both splenic and renal injury is possible in selected patients with renal injuries associated with limited extravasation and bleeding. Development of delayed bleeding, infection, or hypertension (related to the renal injury) is unlikely. Those cases where there are nonviable renal segments are more likely to require delayed laparotomy. Although splenic lacerations may be managed nonoperatively, up to 40% of those with Type II injuries (splenic laceration not extending to hilum) may require operative intervention. Although either injury described in the case presented may require delayed laparotomy, the splenic injury is more likely to require it.

18. In addition to hypercalciuria, renal tubular acidosis is associated with:

A. hyperuricosuria.
B. abnormal quantities of urinary matrix,
C. reduction in urinary citrate,
D. increase in urinary citrate.
E. Hypermagnesemia
Answer= C

Patients with renal tubular acidosis (RTA) may present with hyperchloremic metabolic acidosis if they have the complete form of RTA. More often, patients who have calcium phosphate stones may have incomplete renal tubular acidosis with normal serum electrolytes, yet they will still be acidotic. This chronic metabolic acidosis will cause a significant reduction in urinary citrate production, with patients often having urinary citrate values less than 50 mg/day. Alkalization is the treatment of choice for patients with renal tubular acidosis. Potassium alkali, usually in the form of potassium citrate, has been shown to inhibit recurrent stone formation in patients with RTA.

19. A 35-year-old man under epidural anesthesia has a sustained erection that prevents ureteroscopy. He is best managed by:

A. intracorporal phenylephrine,
B. amyl nitrate inhalation,
C. pudendal nerve block,
D. genera! anesthesia,
E. verapamil.
Answer= A

Intracorporeal injection of phenylephrine is the treatment of choice. The depth of anesthesia is unrelated to the response; anti-hypertensive agents are not effective; and vasodilators are dangerous in this circumstance. Drugs that reduce the erectile state during anesthesia may also be used clinically to treat priapism.

20. The symptom complex of orthostatic hypotension, anhydrosis, detrusor hyperreflexia, denervation of the external sphincter, and a bladder neck that is open at rest best describes patients with:

A. autonomic dysreflexia,
B. diabetic neuropathy,
C. multiple sclerosis.
D. Shy-Drager syndrome.
E. Parkinson's disease.
Answer= D

The symptom complex described above describes the Shy-Drager syndrome. This degenerative disorder results in atrophy of areas in the cerebellum, brain stem, peripheral autonomic ganglia, and thoracolumbar preganglionic sympathetic neurons. Patients with Shy-Drager syndrome usually have Parkinsonian symptoms coupled with orthostatic hypotension and anhidrosis. Because of disruption of the sympathetic innervation to the lower urinary tract, the bladder neck is open at rest. None of the other answers fit with the symptom complex described.

21. A 30-year-old man with infertility has distal shaft hypospadias. Semen analysis reveals an ejaculate volume of 2.0 ml, 25 million sperm/ml, 60% motility, and normal morphology. The best next test is:

A. hamster egg penetration assay,
B. antisperm antibody testing,
C. post-coital testing,
D. serum FSH and testosterone,
E. transrectal ultrasound.

Answer= C

The patient's evaluation is completely normal except for the presence of distal hypospadias. Endocrine testing is not likely to be helpful since his semen analysis is within normal limits. Sperm function testing and antisperm antibody testing are unlikely to be contributory either. Post-coital testing is indicated to determine whether the sperm are being deposited in the cervix. Insemination is indicated only if the post-coital test is abnormal.

22. A 45-year-old man with congestive heart failure develops epididymitis. His current medications include digoxin, enalapril and amiodarone. The next best step in management is:

A. administer ciprofloxacin,
B. discontinue enalapril.
C. discontinue amiodarone.
D. discontinue digoxin.
E. administer doxycycline.

Answer= C

The incidence of epididymitis during amiodarone therapy is reported to be as high as 11%. Epididymitis usually resolves with discontinuation of this medication and antibiotic therapy is not thought to be necessary. This condition has been associated with high serum or epididymal levels of amiodarone or its metabolites. The development of anti-amiodarone antibodies may play a role in the pathophysiology of this disorder. Lymphocytic infiltration and fibrosis of the epididymis are seen on histologic analysis.

23. A 53-year-old man with urgency, nocturia, and hesitancy failed terazosin treatment (secondary to orthostatic hypotension) for his lower urinary tract symptoms. His postvoid residual urine is 250 ml and his Qmax is 10 ml/sec. He has recently remarried and wishes to impregnate his spouse in the near future. The best next step is:

A. tamsulosin.
B. oxybutynin.
C. TUMT.
D. TUIP.
E. TURP.

Answer= A

All the above mentioned choices have a risk of impacting antegrade ejaculation or increasing his postvoid residual urine. Of the choices, tamsulosin offers a relatively high, but reversible risk of retrograde ejaculation Anti-cholinergics risk worsening of his postvoid residual urine. In this scenario, tamsulosin offers treatment advantages that the others do not.

24. Testosterone production during differentiation of the urethra is under the regulation of:

A. fetal LH.
B. maternal LH.
C. maternal hCG.
D. fetal GnRH.
E. fetal FSH.

Answer= C

Fetal Leydig cell function during the first trimester of pregnancy is under maternal hCG regulation. The fetal pituitary does not begin to secrete gonadotropins until the second trimester of gestation. Therefore, if there is a problem with fetal hypothalamic-pituitary function, this does not become evident until the second trimester of gestation. The most common cause of micropenis is probably fetal hypothalamic-pituitary dysfunction.

25. The angiographic evaluation of a potential living donor is illustrated (see figures). Appropriate management of this potential donor is:

A. exclude from donation.
B. donor nephrectomy with ligation of upper pole artery,
C. donor nephrectomy with ligation of lower pole artery,
D. donor nephrectomy with extracorporeal arterial repair,
E. donor nephrectomy with aortic (Carrel) patch.

Answer= D

This donor has two renal arteries of approximately equal caliber on each side. This does not exclude the patient from donation. However, "bench repair" will be required at the time of transplantation. "All things being equal" the left side is chosen for donatior because of the longer length of renal vein. In this case, there are two arteries on both sides so that in fact "all things are equal" Standard management would be a left donor nephrectomy with either side to side or end to side "bench repair" at the time of transplantation.

26. A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. His creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:

A. captopril plasma renin activity test,
B. unstimulated plasma renin activity test,
C. captopril renography,
D. duplex ultrasound.
E. Lasix renography.

Answer= D

This 52-year-old man is at risk for renovascular hypertension. Of the captopril modulated testing (PRA and captopril renogram) the renogram is a better test than peripheral PRA. Critical to the performance of these tests is appropriate patient preparation. Ideally, patients should be off ail medications for two weeks. This is usually not possible clinically. It is apparent that ACE inhibitors will reduce the sensitivity of testing. Other anti hypertensives can be used up to the morning of testing. In this setting duplex ultrasound will give anatomic information on the renal arteries sufficient to determine the need for angiography.

27. The neural tissue(s) most likely to be damaged during a dorsal lumbotomy incision is (are):

A. iliohypogastric and ilioinguinal.
B. subcostal.
C. sympathetic.
D. celiac ganglion.
E. genitofemoral.

Answer= A

The iliohypogastric and ilioinguinal nerves lie posterior to the kidney and must be avoided in a posterior approach to the kidney. The other mentioned nerves are not in the surgical field.

28. Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. Optimal management is:

A. nasogastric suction and parenteral hyperalimentation,
B. endoscopic intubation of the pancreatic duct,
C. continued observation,
D. distal pancreatectomy,
E. somatostatin.

Answer= A

In this case the clinical findings are most consistent with a pancreatic fistula resulting from unrecognized intraoperative injury to the tail of the pancreas. These fistulas usually close with conservative management

29. The nerve that may be easily trapped by the tacking sutures during a psoas hitch procedure is the:

A. genitofemoral.
B. ilioinguinal.
C. iliohypogastric.
D. femoral.
E. lateral femoral cutaneous.

Answer= A

The genitofemoral nerve penetrates the body of the psoas muscle at about L-3/L-4 where it travels caudally along its surface and is vulnerable to suture injury. The other nerves are all lateral or dorsal to the psoas muscle and removed from the operative site.

30. A 34-year-old man has a large abdominal mass, a palpable right testicular mass, and a mediastinal mass on chest x-ray. Serum alpha-fetoprotein is normal, and beta-hCG is slightly elevated. A right radical orchiectomy reveals pure seminoma. The next step is:

A. VP-16 (etoposide), platinum, and bleomycin chemotherapy,
B. abdominal and mediastinal radiation,
C. doxorubicin and cyclophosphamide chemotherapy,
D. retroperitoneal lymphadenectomy and mediastinal radiation,
E. retroperitoneal tumor biopsy.

Answer= A

This patient has stage III seminoma and should be treated with platinum-based chemotherapy. Radiation therapy alone has been demonstrated to have poor survivals compared to cis-platinum based chemotherapeutic regimens. The survival with stage lib or greater with radiation therapy alone is on the order of 50%. With cis-platinum based chemotherapeutic protocols, however, survivals exceed 90% even for stage III disease. In addition, radiation therapy limits the amount of chemotherapy given by affecting marrow reserves.

31. A 45-year-old hypertensive man with a family history of renal failure was noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complained of marked dysuria. Urine cultures were obtained and he was admitted with a presumptive diagnosis of pyelonephritis. While awaiting culture results the best initial antibiotic is:

A. trimethoprim.
B. gentamicin.
C. ampiciilin.
D. cephalexin.
E. nitrofurantoin.

Answer= D

Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology including renal cysts, calculi, infection, hemorrhage and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, norfloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices.

32. During a gynecological procedure, the most common cause for a ureteral injury is:

A. uncontrolled bleeding from a uterine artery.
B. ureteral entrapment when occluding the ovarian pedicle.
C. ureteral damage during incision of the broad ligament.
D. mistaking the ureter for the round ligament.
E. ureteral damage while encircling and occluding the ovarian pedicle.

Answer= A

In 1% of gynecological procedures, a ureteral injury occurs This most often results from failure to identify the ureter when attempting to obtain hemostasis in the field. Provided there is a clear surgical field, ureteral injury due to confusing it with another structure or during occlusion of the uterine or ovarian vessels is distinctly unusual.

33. A 48-year-old man undergoes transurethral resection of a 34 gm, superficial, transitional cell bladder tumor. At the end of the resection a small bladder perforation is noted, and a large catheter is left to closed drainage. Five days postoperatively, he receives 60 mg intravesical BCG. That evening he has mild hypotension and a fever to 104 degrees Fahrenheit. Treatment should include steroids and:

A. isoniazid.
B. rifampin.
C. cycloserine.
D. isoniazid and rifampin.
E. isoniazid, rifampin, and cycloserine.

Answer= E

The history of a large tumor resection, bladder perforation, and rapid symptoms of sepsis following intravesical BCG therapy all suggest systemic drug absorption and infection. Anaphylaxis and death may occur in rare cases. Early triple drug tuberculosis therapy with isoniazid, rifampin, and cycloserine is indicated for severe BCG infections. Milder infections may be treated with the first two drugs alone.

34. Renal blood flow is autoregulated by:

A. sympathetic nerves,
B. glomerular filtration rate,
C. cardiac output,
D. parasympathetic nerves,
E. afferent arteriolar resistance.

Answer= E

Autoregulation of glomerular filtration rate and renal blood flow occurs primarily through variations in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as distal tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and glomerular filtration rates over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

35. In hypogonadal men, the agent which improves the results of nocturnal penile tumescence testing but does not affect erection in response to erotic films is:

A. testosterone.
B. L-Dopa.
C. sildenafil.
D. yohimbine.
E. bromocriptine.
Answer= A
Androgen replacement in hypogonadal men does increase sexual activity and interest. The relationship between androgen replacement and penile erection is not so straightforward. When evaluated with nocturnal penile tumescence testing, hypogonadal men demonstrate decreased erectile activity and this abnormality is corrected with testosterone replacement. Laboratory tested erectile responses to erotic films, however, are usually normal in hypogonadal men. These observations are consistent with the conclusion that the major effect of testosterone therapy on sexual function is to enhance libido and not to directly improve penile erection in a sexual setting. The answer to the question is, therefore, testosterone. None of the other drugs are known to exert these effects.

36. A 23-year-old man undergoes local excision of a paratesticular mass through a scrotal incision. Pathology reveals an adenomatoid tumor. The best next step is:
A. observation.
B. serum AFP and hCG determination,
C. abdominal and pelvic CT scan,
D. inguinal orchiectomy.
E. inguinal orchiectomy and partial scrotectomy.
Answer= A
Adenomatoid tumors are innocuous lesions of the testis and epididymis which generally follow a benign course. Local excision alone is adequate therapy.

37. The mechanism of action of aminoglutethimide for the treatment of metastatic adenocarcinoma of the prostate gland is:
A. inhibition of adrenal steroid synthesis,
B. inhibition of 5-alpha-reductase,
C. competition for LH-RH receptor sites,
D. competition for testosterone receptor sites,
E. suppression of LH,
Answer= A
Aminoglutethimide inhibits the conversion of cholesterol to pregnenolone, the first step in steroid biosynthesis. As a result the drug causes inhibition of cortisol and adrenal androgen production. This latter effect of aminoglutethimide is used in the treatment of patients with prostate

38. Routine staining of a bone biopsy from a 60-year-old man with diffuse metastases reveals poorly differentiated adenocarcinoma. The immunohistochemical stain most likely to determine whether the tumor is of prostatic origin is:
A. cytokeratin.
B. prostate specific membrane antigen (PSMA).
C. prostatic acid phosphatase,
D. prostate specific antigen (PSA),
E. alkaline phosphatase.
Answer= B
In a study of 184 radical prostatectomies from previously untreated patients. Bostwick et al found intense cytoplasmic epithelial immunoreactivity for PSM (prostate specific membrane antigen) in every prostate cancer. The most extensive and intense staining for PSM was observed in high grade carcinoma (Gleason primary pattern 4 or 5) with immunoreactivity in virtually every cell. Studies have shown that individual cells in poorly differentiated carcinoma produce less PSA than cells in well differentiated and moderately differentiated carcinoma and also normal prostate epithelium.

39. A 30-year-old man with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine contains 6.8 gm protein. Other likely associated findings include:
A. hypoproteinemia, hypocholesterolemia.
B. hypercholesterolemia, increased total body sodium,
C. hypovolemia, reduced total body sodium,
D. hyponatremia, hyperkalemia,
E. hypovolemia, metabolic acidosis.
Answer= B
This patient has nephrotic syndrome with generalized anasarca. In this disorder, increased permeability of the glomerular capillary basement membrane leads to leakage of plasma protein into the glomerular filtrate and urine. The resulting hypoproteinemia causes a drop in circulatory volume. This leads to decreased renal perfusion and activation of the renin-angiotensin system with subsequent release of aldosterone. Sodium is retained and the temporary hyperosmolality increases ADH secretion. Total body sodium and water increase, but the serum sodium does not usually change because the increased fluid goes into the extracellular space, causing edema The secondary aldosteronism may also cause an increased bicarbonate, alkalosis, and hypokalemia. The nephrotic syndrome is also characterized by an increase in plasma lipid concentration which includes cholesterol, phospholipids, and triglycerides.

40. A 50-year-old woman has irritative and obstructive voiding symptoms and urgency incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H20, residual urine of 150 ml, a silent external sphincter, minima! opening of the bladder neck during voiding, and no cystocele. Cystoscopy is normal. The next best step is:
A. terazosin.
B. oxybutynin.
C. biofeedback,
D. urethral dilation,
E. transurethral incision of bladder neck.
Answer= D
This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy.

41. Stage for stage, renal cell carcinoma has the poorest prognosis if the histology is predominantly:
A. dear cell,
B. papillary,
C. sarcomatoid,
D. chromophobe.
E. mixed clear and granular cell.
Answer= C
Sarcomatoid renal tumors are unusual but are associated generally with a poor prognosis There is no convincing evidence that any of the other histologies commonly seen with renal cancer are of strong prognostic significance.

42. In a patient with an absent right kidney and a left pelvic kidney, the right adrenal is:
A. absent and the left is adjacent to the upper pole of the kidney.
B. absent and the left is in the normal anatomic position.
C. in the normal anatomic position and the left is adjacent to the upper pole of the kidney.
D. in the normal anatomic position and the left is in the normal anatomic position.
E. in the normal anatomic position and the left is absent.
Answer= D
The adrenal gland is in the normal anatomic position, no matter whether the kidney is absent or ectopic.

43. A 60-year-old man with retinitis pigmentosa and erectile dysfunction fails to get an erection with intracorporal and intraurethrai PGE-1. His serum testosterone level is 400 ng/dl and color Doppler peak flow velocity of the cavernous arteries is 16 cm/sec after 20 meg of PGE-1. The best next step in treatment of his erectile dysfunction is:

A. counseling.
B. sildenafil.
C. insertion of penile prosthesis,
D. testosterone supplementation,
E. yohimbine.
Answer= C

In patients with inherited retinal disorders such as retinitis pigmentosa, sildenafil use is contraindicated. Sildenafil downregulates PDE-VI expression in the retina and exacerbates visual disturbances. Testosterone supplementation is only indicated in the presence of documented hypogonadism. Yohimbine is not a useful treatment. In the presence of documented arterial insufficiency, a penile prosthesis is the best treatment.

44. At the time of diagnosis of muscle invasive transitional cell carcinoma of the bladder, most patients:

A. have had previous urinary infections.
B. have never had a previous bladder tumor.
C. have been exposed to known occupational/environmental carcinogens.
D. are active smokers,
E. are under age 65.
Answer= B

Almost all patients who die from TCC of the bladder have prior or concurrent muscle invasive tumors Over 84% of patients with muscle invasive disease have not had prior bladder tumors. Hence, treatment and surveillance strategies for patients with superficial tumors is not likely to reduce mortality from this disease. Patients with occupational exposure histories or prior infections have higher risk for developing bladder cancer but do not account for more than 20% of cases. In the US. the majority of bladder tumor patients have histories of smoking cigarettes, and more than half are former smokers.

45. A 58-year-old man has a distal ureteral stricture following ureteroscopic stone extraction. The primary factor that predicts the success of balloon dilation is:

A. length of stricture.
B. length of time since injury.
C. associated infection.
D. proximity to ureterovesical junction.
E. presence of calculus disease.
Answer= A

Although length of time since injury, associated infection, and the proximity to the ureterovesical junction can affect prognosis, the primary determinant is length of the stricture.

46. A one-week-old boy is observed to void in small amounts with only 5 to 10 minutes between several voiding episodes. He is otherwise apparently well. Appropriate evaluation is:

A. bladder and kidney ultrasound.
B. VCUG.
C. radionuclide cystogram.
D. observation,
E. retrograde urethrogram.
Answer= D

Normal infantile voiding patterns often include frequent small volume, incomplete voids. These have been documented in normal children using continuous ambulatory urodynamics. In the absence of other findings, no specific evaluation should be undertaken.

47. Type V phosphodiesterase inhibitors selectively relax smooth muscle of the:

A. prostate.
B. penis.
C. detrusor.
D. urethra.
E. ureter.
Answer= B

Phosphodiesterase (PDE) inhibitors were initially developed for the treatment of heart disease. The PDE-5 are predominant in the corporal smooth muscle of the penis and are inhibited selectively by sildenafil citrate. The smooth muscle of the vascular system and platelets are additional locations of PDE-5.

48. The most important development in the prevention of catheter-associated urinary tract infections in hospitalized patients is the:

A. use of silicone-coated catheters,
B. addition of Betadine.
C. institution of daily antibacterial meatal care,
D. use of ora! antibiotics.
E. closed catheter drainage system.
Answer= E

Without question, the most important development in the prevention of catheter-associated UTI's in hospitalized patients has been the closed catheter system. When inserted and maintained properly, the entire system, from the aseptically introduced catheter tip in the bladder to the urinary drainage bag, is closed to the outside environment. It the integrity of the system is disrupted, however, the risk of infection increases. An "open" drainage system assures about a 100% incidence of catheter-associated UTI within three to four days, whereas a "closed" drainage system reduces the rate of infection to about 5% per day, with the median onset for significant bacteriuria the eighth day of catheterization.

49. A one-month-old girl has massive right hydronephrosis secondary to ureteropelvic junction obstruction. The left kidney appears normal. Isotope renography shows relative renal function of 85% on the left and 15% on the right. The best next step is:

A. right nephrectomy.
B. right percutaneous nephrostomy.
C. repeat renography in three months.
D. right pyeloplasty.
E. right cutaneous pyelostomy.
Answer= D

The immediate repair of a ureteropelvic junction obstruction is advised in infants. Neither delay nor removal of this kidney is appropriate since the functional capacity may improve after relief of obstruction, particularly in this age group. Temporary nonintubated cutaneous diversion may provide an acceptable alternative in the very ill or septic infant. Nephrostomy drainage is not recommended in young infants.

50. A 27-year-old woman at 30 weeks of gestation has gross hematuria. Ultrasound shows a normal pregnancy and a maternal bladder lesion. Cystoscopy reveals a 3 cm pedunculated papillary lesion. The remainder of the bladder is normal. The most appropriate management is:

A. transurethral resection after term delivery.
B. immediate transurethral resection.
C. early delivery followed by transurethral resection.
D. remove tumor with cup biopsy forceps at initial cystoscopy.
E. immediate tumor ablation with Nd:YAG laser.
Answer= C

Transitional cell carcinoma of the bladder during pregnancy is uncommon Hematuria during pregnancy may be mistaken for antepartum bleeding. Although hematuria is often due to infection, other causes must be kept in mind. Bladder sonography has been very accurate in detecting tumors in pregnant women. Although ultrasound is a good screening technique, it is still not reliable and cystoscopy should be considered in all pregnant patients with documented gross hematuria or persistent microscopic hematuria. Cystoscopy revealed a typical papillary low grade tumor. The endoscopic tumor resection should be performed after the delivery. Immediate resection under anesthesia might induce uterine contractions. Bladder tumors in this age group almost always are low grade and noninvasive, and as such do not require immediate removal.

51. A 47-year-old man with diabetes mellitus has erectile dysfunction, decreased vibratory sensation in his feet and fasting blood sugars over 300 mg/dl. Effective treatment of the erectile dysfunction can be achieved with:
A. exogenous testosterone,
B. exogenous gonadotropins
C. improved diabetic control.
D. Vitamin B complex,
E. penile prosthesis.
Answer= E
Exogenous androgen, gonadotropin and vitamin therapy does not restore potency in the diabetic male. Even with good control of the underlying diabetes, erectile dysfunction usually persists. Alternative therapies such as sildenafil citrate, intracavernous injection therapy, and a vacuum erection device can also be effective in many of these patients. Some diabetic patients will ultimately require a penile prosthesis.

52. The tetracyclines are:
A. bactericidal and inhibit bacteria! protein synthesis,
B. bacteriostatic and inhibit bacterial protein synthesis,
C. bactericidal and inhibit bacterial ceil wall synthesis,
D. bacteriostatic and inhibit bacterial cell wall synthesis,
E. bacteriostatic and inhibit folic acid synthesis.
Answer= B
The tetracyclines inhibit protein synthesis by binding the 30S ribosomal subunit which interferes with the addition of amino acids to the growing peptide chain. They are bacteriostatic.

53. A 30-year-old man undergoing VIP (vinblastine, ifosfamide, cisplatum) chemotherapy for metastatic germ cell carcinoma develops gross hematuria. Evaluation includes a CT scan showing normal kidneys and collecting systems and a thickened bladder wail. Cystoscopy discloses no visible tumor in the bladder but the mucosa is diffusely hemorrhagic. The hematuria could have been prevented by:
A. aminocaproic acid (Amicar).
B. bladder irrigation during therapy,
C. intravenous hydration and urinary alkaiinization.
D. use of carbo-platinum instead of cis-platinum.
E. mercaptoethane sulfonate (Mesna).
Answer= E
Cytoxan and ifosfamide induced cystitis is caused by acrolein. The concomitant administration of Mesna binds the acrolein, minimizing its untoward effects. Efforts to minimize the contact time with the bladder mucosa may also be beneficial. Hydration and urinary alkalinization would not have any significant effect.

54. The primary advantage of ultrasound for ESWL stone localization is:
A. capability for real-time monitoring,
B. short learning curve.
C. multifunctional use for diagnosis and endourological treatment.
D. ability to identify ureteral calculi.
E. efficacy in clinical situations with multiple calculi.
Answer= A
The major advantages of fluoroscopy for stone location are: a short learning curve, a wide range of indications for in situ treatment, and multifunctional use of x-ray. The localizing problems for fluoroscopy consist chiefly of stones close to the vertebral column and radiolucent calculi. The advantages of ultrasound for stone location are: low purchase costs and maintenance, no x-ray exposures, the possibility of real-time monitoring, and location of radiolucent calculi. Calculi in the middle ureter are almost impassible to localize with ultrasound. Multiple calculi may be problematic for ultrasonic stone location.

55. Renal dysplasia is most likely to be associated with:
A. ectopic ureterocele,
B. ureteropelvic junction obstruction,
C. vesicoureteral reflux,
D. simple ureterocele.
E. posterior urethral valves.
Answer= A
Although renal dysplasia is occasionally seen in association with each of these entities, it is most frequently found in the renal segment subtending an ectopic ureterocele.

56. The major limiting side effect of gonadotropin-releasing hormone agonists in the treatment of BPH is:
A. hot flashes,
B. gynecomastia,
C. oligospermia,
D. erectile dysfunction,
E. acute urinary retention.
Answer= D
GnRH or LHRH agonists cause hypogonadism by altering the secretion of gonadotropins from the pituitary. This hypogonadism results in erectile dysfunction in men who are patent. This is the major limiting step in the use of these compounds in men for BPH.

57. A 55-year-old woman has a one-year history of persistent asymptomatic, pansensitive Proteus urinary tract infection despite continuous oral penicillin drug therapy. There are multiple 1-2 mm calculi in an upper pole calyx of the left kidney. The right kidney is normal as are cystoscopy and VCUG. The recommended treatment is:
A. partial nephrectomy.
B. ESWL of the calculi,
C. percutaneous chemolysis.
D. intravenous antibiotic therapy for two weeks,
E. continued penicillin therapy.
Answer= B
Patients with struvite calculi can be treated effectively with shockwave lithotripsy. This is especially true when the stone volume is low and the calculi are located in nondependent portions of the renal collecting system.

58. The risk of HIV transmission from a single blood transfusion is:
A. 1 in 25,000.
B. 1 in 50,000.
C. 1 in 250,000.
D. 1 in 500,000.
E. 1 in 1.000,000
Answer= D
In the United States, transmission of HIV by blood transfusion occurs almost exclusively when a recently infected blood donor is infectious but before antibodies to HIV become detectable "during

the window period." Based on the latest information estimating the risk of HIV transmission, it was estimated that there was a risk of 1 case of HIV transmission for every 450,000 to 660.000 donations of screened blood. Surgeons should be aware of this statistic as their patients do ask this important question.

59. The primary advantage of tamsulosin over doxazosin for the treatment of BPH is:
A. greater efficacy.
B. less retrograde ejaculation.
C. more favorable lipid effects.
D. no effect on blood pressure in hypertensives.
E. no dose titration.
Answer= E
Tamsulosin exhibits partial selectivity for the alpha-1 A over the alpha-1 B adrenoceptor subtype Tamsulosin 0.4 mg is an effective dose and is administered without dose titration. Doxazosin requires titration to an effective dose. Tamsulosin is no more effective than doxazosin and has a greater incidence of retrograde ejaculation. Although tamsulosin does not lower blood pressure in hypertensive men, this is not an advantage. The effect of tamsulosin on lipids has not been well characterized.

60. The Mitrofanoff principle of continent urinary diversion depends on continence with:
A. an ileal nipple.
B. intussuscepted ileum.
C. an appendix flap valve.
D. detubuiarized bowel.
E. both large and small bowel segments.
Answer= C
The Mitrofanoff principle of continent urinary diversion is represented by a large capacity reservoir of low pressure with a small caliber conduit implanted into the reservoir in a non-refluxing (flap valve) manner (usually appendix) and the use of clean intermittent catheterization to empty the reservoir at regular intervals. The Kock pouch has employed an ileal nipple and the Indiana pouch has employed imbricated ileum. Detubularized bowel and various bowel segments have been utilized in many forms of continent urinary diversion but are not specifically identified with Mitrofanoff.

61. A 24-year-old man with a gunshot wound shattering the L-4 vertebral body achieves stable neurogenic bladder dysfunction nine months later. Urodynamic studies will likely show:
A. detrusor hyperreflexia, sphincter dyssynergia.
B. detrusor hyperreflexia, normal sphincter EMG.
C. detrusor arefiexia, sphincter dyssynergia.
D. detrusor arefiexia, norma! sphincter EMG.
E. detrusor arefiexia, denervation potentials on EMG.
Answer= E
An injury to the vertebral column at L-4 injures the cauda equina and. depending on the extent of neural damage, will produce a loss of motor and sensory fibers to the bladder, pelvic floor, and external sphincter. Detrusor sphincter dyssynergia is produced by suprasacral spinal cord lesions which interrupt the ascending and descending pathways between the sacral spinal cord and the center for reflex bladder and urethral function in the brain stem. Reflex detrusor function requires sacral root and sacral cord integrity. While an areflexic bladder faces fixed internal sphincter activity, that activity is normal and not truly dyssynergic. Since within the sacral and lumbar canal nerve roots are intermingled, a lesion which produces detrusor areflexia would be expected to have a similar effect on the external sphincter; hence, the denervation potentials.

62. Which antibiotic is most likely to produce hemolytic anemia in a patient with glucose-6-phosphate dehydrogenase deficiency:
A. ampicillin.
B. cephalosporin,
C. methenamine mandelate.
D. nitrofurantoin,
E. tetracycline.
Answer= D
Glucose-6-phosphate dehydrogenase deficiency of red cells occurs in about 10 percent of African-Americans and some peoples of Mediterranean and Near Eastern origin. Hemolytic anemia has occurred when people with a glucose-6-phosphate dehydrogenase deficiency have taken nitrofurantoin. It is probably related to a primaquine type sensitivity reaction and hemolysis stops when the drug is stopped.

63. The most common long-term sequela of a renal arteriovenous fistula occurring after needle biopsy of the kidney is:
A. tachycardia.
B. hematuria,
C. flank pain.
D. diastolic hypertension,
E. spontaneous closure.
Answer= E
Approximately 70% of fistulas occurring after needle biopsy of the kidney close spontaneously within 18 months. In the absence of significant related symptoms in such a patient, expectant management is appropriate initially. The clinical manifestations of a renal arteriovenous fistula depend upon the size of the fistula. Congestive heart failure, cardiomegaly, and diastolic hypertension are observed in 50% of symptomatic patients. Hematuria is present in about a third, tachycardia is occasionally found, and a palpable flank mass is very rarely encountered. About 75% of patients have an abdominal bruit.

64. A 40-year-old man has painless priapism of 36 hours duration. A needle is inserted into the corpora cavernosa and bright red blood is aspirated. One hundred (100) meg of phenylephrine are injected intracorporally and prompt detumescence occurs. Thirty minutes later, the penis is again rigid. The most likely etiology of the priapism is:
A. idiopathic.
B. trazodone ingestion,
C. intracavernosal injection of PGE1.
D. leukemia,
E. perineal trauma.
Answer= E
This patient has classic findings of high flow priapism. The priapism is painless. Bright red blood is aspirated from the corpora despite the fact priapism has been present for 36 hours. In addition, in cases of high flow priapism, the intracorporal injection of alpha-adrenergic agonists typically produces detumescence but penile rigidity quickly returns. Almost all cases of high flow priapism reported to date have been secondary to trauma and injury to the intracavernosal artery. A fistula occurs between the cavernosal artery and the corpus cavernosum; blood flow into the corpora is unregulated and high flow priapism occurs. The answer is, therefore, perineal trauma. Almost all cases of idiopathic priapism as well as priapism associated with trazodone ingestion, the intracavernosal injection of PGE1, and leukemia are associated with low flow states.

65. A 15-year-old sexually active boy has urethritis, confluent red papules with a yellowish scale on the glans penis, arthritis of the knees, and uveitis. The best initial treatment of the skin lesions is:
A. IM penicillin G.
B. systemic retinoids,
C. topical steroids,
D. topical podophyliin.

E. oral erythromycin.
Answer=A?

66. The first recordable event in the micturition reflex is:
A. fall in urethral pressure,
B. rise in detrusor pressure,
C. cessation of sphincter EMG activity,
D. opening of vesical neck.
E. rise in abdominal pressure.
Answer= C
Pelvic floor muscular activity, as measured by sphincter EMG activity, is suppressed in the first stage of the micturition reflex. This occurs before any rise in detrusor pressure or fall in urethral pressure. Opening of the bladder neck does not occur until pelvic muscular activity has decreased.

67. A three-year-old boy has a palpable abdominal mass. Ultrasound and CT scan suggest the diagnosis of a multilocular cyst. The next step is:
A. observation with repeat ultrasound in one year.
B. cyst aspiration.
C. bone marrow aspirate.
D. nephrectomy.
E. MRI scan.
Answer= D
Microscopic foci of nephroblastoma are often found in the septae of multilocular cysts and thus, a multilocular cyst while benign itself, is considered a premalignant lesion. This is different from a multi cystic dysplastic kidney (MSD) There is very little evidence that MSD is a premalignant lesion, although some controversy exists.

68. The most objective measure of the severity of incontinence is:
A. number of pads used per day.
B. voiding log.
C. pad weighing test.
D. post-stress test residua! volume.
E. coefficient of abdominal pressure transmission.
Answer= C
The only validated objective measure of significant urinary loss is shown to be a pad weighing test. Although useful, a voiding log is not a quantitative test. Pads per day reported by patients is uniformly a poor measure because of its subjective nature, dependence on volume, and variability between the degree of wetness and pad changes. Post-stress test residual volume or a transmission coefficient ratio has not been shown to correlate with severity of urinary loss.

69.A two-year-old girl has a febrile UTI. An ultrasound is normal, but a VCUG demonstrates left Grade IVA/ vesicoureteral reflux. There is a compound upper pole calyx and simple calyces throughout the rest of the kidney. A DMSA scan of the left kidney one week and nine months after the infection would most likely show:

	One Week	Nine Months
A.	normal	normal
B.	normal	Upper pole defect
C.	upper pole defect	upper pole defect
D.	multiple defects	normal
E.	multiple defects	multiple defects

Answer= C
Renal injury after a UTI in a patient with reflux will usually occur at the site of intrarenal reflux, a condition that is associated with compound calyces. Conversely, injury is less likely in other areas of the kidney, where the calyceal configuration is simple and in which there is not likely to be intrarenal reflux. Injury will occur at the time of the first infection in susceptible areas, but may not be permanent. In the case of early aggressive antibiotic therapy a temporary injury may heal and a permanent scar may be avoided.

70. A 45-year-old man with no previous voiding difficulty requires catheterization for urinary retention following a lumbar laminectomy. A combined CMG and external sphincter electromyogram shows normal bladder compliance but no detrusor contraction. An increase in pelvic floor muscle activity is seen when the patient coughs or strains. The most likely cause for urinary retention is:
A. detrusor-external sphincter dyssynergia.
B. detrusor-internal sphincter dyssynergia.
C. infravesicai obstruction due to benign prostatic hypertrophy,
D. transient detrusor areflexia.
E. myogenic detrusor decompensation.
Answer= D
This patient demonstrates no evidence of a detrusor contraction with filling of the bladder and it is assumed that he is straining to void. The pelvic floor skeletal muscles contract in response to intra-abdominal straining which is a normal cause for increased activity. Significant prostatic hypertrophy with intravesical obstruction is unlikely in the absence of previous voiding difficulty. Because of normal detrusor compliance, there is no evidence that the bladder has been chronically overdistended. The correct answer is transient detrusor areflexia as a result of the spinal cord changes that occur during laminectomy which will usually resolve with time.

71 A 68-year-old man has a nodular prostate with firm induration extending to the seminal vesicles. The serum creatinine is 2.8 mg/dl. There is bilateral ankle edema and the neck veins are prominent. An ultrasound shows bilateral hydronephrosis with ureteral dilation and 10 cc residual urine. Prostate biopsy confirms adenocarcinoma. The next step is:
A. LH-RH analogue,
B. bilateral orchiectomy,
C. pelvic radiation therapy,
D. double J-stents.
E. percutaneous nephrostomy.
Answer= B
This degree of renal insufficiency does not warrant diversion or ureteral catheterization without a trial of anti-tumor therapy. Whether to choose radiotherapy or hormonal therapy is still controversial, but it is fair to say that radiation therapy may temporarily worsen the ureteral obstruction due to tumor edema. Hormonal therapy will result in improved ureteral drainage in nearly 60% of patients. Treatment with an LH-RH analogue alone may temporarily worsen the ureteral obstruction unless given in conjunction with an antiandrogen.

72. A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli urinary infection. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:
A. absorptive hypercalciuria.
B. primary hyperparathyroidism,
C. ectopic hyperparathyroidism,
D. secondary hyperparathyroidism,
E. urinary infection.
Answer= C
Among the conditions this man has, only the ectopic production of parathyroid hormone related peptide would explain his stone formation. E coli is not a urea splitter and thus should not cause the stone in this man's case. Given a history of peptic ulcer disease, a stone can form due to the development of milk-alkali syndrome, however, this is not one of the listed choices The presence of hypercalcemia rules out secondary hyperparathyroidism. While

absorptive hypercalciuria likely is playing a role in this patient, it is more likely due to the effect of ectopic production of parathyroid hormone related peptide (homology to PTH in the first 13 amino acids). This ectopic production is most commonly seen with squamous cell carcinoma of the lung (as In this case), head or neck.

73. A 40-year-old woman has a pelvic abscess secondary to perforated sigmoid diverticulitis. The abscess is drained and a colostomy is performed. Subsequently, the sigmoid is resected and the colostomy is closed. One year later she undergoes excision of a large serous cyst of the left ovary. On the third postoperative day, urine begins to drain from the Penrose drain site. The surgical specimen is reported to include a 5 cm segment of ureter. An IVP shows a normal right kidney and ureter. The left collecting system reveals slight hydronephrosis and hydroureter down to L-5. The most appropriate treatment is:

A. left nephrectomy,
B. transureteroureterostomy.
C. Interposition of an ileal segment,
D. ureteroureterostomy.
E. autotransplantation of the left kidney to the right pelvis.
Answer= B

Because of extensive damage to the tissues of the left side of the pelvis from the recent and prior diseases, a ureteroureterostomy or interposition of an ileal segment would be very difficult and apt to fail. Because the left kidney functions well and the patient is only 40 years old, nephrectomy is not indicated at this point. Autotransplantation to the right side of the pelvis is a possibility but is a formidable procedure and should be reserved for situations where there are no other reasonable options. The remaining left ureter has sufficient length and is far enough removed from the damaged tissues to permit a satisfactory transureteroureterastomy.

74. After six months of therapy with an LH-RH analogue, a patient with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:

A. increased Leydig cell sensitivity to minute amounts of LH,
B. reflex increase in ACTH.
C. increased adrenal cortical sensitivity to ACTH,
D. failure to suppress dehydroepiandrosterone.
E. peripheral conversion of estrogen into testosterone.
Answer= D

LH-RH analogues downregulate pituitary cell LH-RH cell surface receptors and totally block LH release and synthesis. Leydig cells may experience an upregulatlon of LH receptors, but there Is no LH available for binding. The production of dihydroepiandrosterone and androstenedione. the principal adrenal androgens, is regulated by ACTH. Both of these adrenal androgens can be converted to testosterone peripherally but constitute no more than 10% of total testosterone. Manipulations of the LH-RH Leydig cell axis do not affect adrenal androgen production. Peripheral conversion of androgens to estrogens is unidirectional.

75. During an inguinal hernia repair, a normal appearing three-year-old girl is found to have a testicle in the hernia sac. Further workup will reveal:

A. congenita! adrenal hyperplasia,
B. testicular feminization.
C. Reifenstein syndrome,
D. hernia uterine inguinale.
E. Denys-Drash syndrome.
Answer= B

Three percent of girls with inguinal hernias have testicular feminization. A testicle is found in the hernia sac and a chromosome analysis Will reveal a 46 XY karyotype. They should be raised as females and will require gonadectomy.

76. Increased levels of plasma testosterone-binding globulin (TeBG) and reduced free testosterone levels may be secondary to:

A. androgens,
B. estrogens,
C. growth hormone,
D. glucocorticoids,
E. obesity.
Answer= B

Increased blood levels of TeBG cause more binding of testosterone and, therefore, lower free testosterone levels. Estrogen increases plasma TeBG levels, and, therefore, reduces the free testosterone fraction. Conversely, TeBG levels are decreased by androgens, growth hormone, glucocorticoids, and obesity.

77. A 44-year-old woman has left flank pain. IVP shows a mass that arises from the inferior aspect of the left kidney and a normal right kidney. Ultrasound shows dense echoes within the mass. CT scan shows a 6.5 cm mass with negative 40 Hounsfield units that enhances with contrast administration. The preferred management is:

A. left partial nephrectomy,
B. left nephroureterectomy.
C. left radical nephrectomy.
D. CT-guided needle biopsy
E. observation.
A

Negative Hounsfield units on CT scan are strongly suggestive of the presence of an angiomyolipoma. The natural history of renal angiomyolipoma can be correlated with renal size at presentation Patients with renal angiomyolipomas greater than 4 cm in diameter are likely to be symptomatic and surgery is recommended. Renal sparing surgery is indicated when possible.

78. The parameter most likely to improve after varicocelectomy in adults is:

A. seminal volume,
B. sperm motility,
C. sperm morphology,
D. sperm density,
E. testicular volume.
Answer= B

After varicocele repair 70% of patients have improvement in sperm motility, 51% have improved sperm densities, and 44% have improved morphology. In adolescent varicoceles, the testes may be smaller with decreased consistency and, following correction, testicular volume may improve.

79. A 60-year-old man with a serum PSA of 20 ng/ml seeks treatment for a Gleason's 7 prostate cancer. DRE demonstrates bilateral induration of the prostate. Staging bone and CT scans are normal. He declines radical prostatectomy. The best management is:

A. external beam radiotherapy with adjuvant hormonal therapy,
B. high-dose externa! beam radiotherapy,
C. transperineal brachytherapy with 1-125 seeds.
D. neoadjuvant hormonal therapy and brachytherapy with palladium
E. seeds. cryosurgery.
Answer= A

A recent randomized study demonstrated advantages in both biochemical failure and disease-free survival rates in men with locally advanced prostate cancer treated by external beam radiotherapy and hormonal therapy for three years afterwards. The published cancer control rates for brachytherapy, brachytherapy with neoadjuvant therapy, and cryosurgery are poor for patients with high risk features. Trials of external beam radiotherapy with dose

escalation are also underway to determine if similar results can be achieved without adjuvant therapy.

80. The fluoroquinolone antimicrobial agents work by:
A. inhibition of cell wall biosynthesis,
B. alteration of nucleic acid metabolism,
C. inhibition of bacterial DNA gyrase.
D. inactivation of bacterial ribosomal proteins,
E. inhibition of RNA polymerase.
Answer= C
The fluoroquinolone antimicrobial drugs have rapidly become widely prescribed in urology. They work by inhibition of bacterial DNA gyrase, an enzyme that is involved with DNA supercoiling.

81. A 60-year-old man develops persistent mild diarrhea and fatigue five years following radical cystectomy and Kock pouch urinary diversion for Stage T2 (B1) transitional cell carcinoma of the bladder. Laboratory studies reveal: Hgb 10.8 gm/dl: Na 135mEq/l; K4.8mEq/l; Cl 110mEq/l; C02 20mEq/l; creatinine 1.3 mg/dl. The study most likely to reveal the cause of the above findings is:
A. pouchogram.
B. serum Vitamin B12 level
C. abdominal CT scan,
D. upper Gi series,
E. barium enema.
Answer= B
This patient's anemia and diarrhea are most likely due to malabsorption and acquired Vitamin B12 deficiency. Fortunately, electrolyte and metabolic disturbances are rare following continent urinary diversion. However, they do occur and are easily corrected if diagnosed.

82. A 74-year-old man has shortness of breath, lower extremity edema, and decreased appetite four months after a left percutaneous nephrolithotomy. He admits to intermittent gross hematuria yet his hematocrit is stable. A loud abdominal bruit is heard. An arteriogram confirms a left renal arteriovenous fistula and a normal right kidney. The preferred treatment is:
A. nephrectomy,
B. after-load reduction,
C. partial nephrectomy,
D. selective embolization,
E. angiotensin-converting enzyme inhibitor.
Answer= D
Arterio-venous fistulae are rare after percutaneous nephrolithotomy. This patient has with high output congestive heart failure and intermittent gross hematuria. Observation is not an option. Nephrectomy should be reserved for life threatening situations. In the presence of prior urinary stone disease renal preservation should be encouraged. A partial nephrectomy removes important renal parenchyma and is not without potential complications. A less invasive and more optimal approach Is selective embolization. The hematuria should rapidly resolve and his heart failure will most likely improve.

83. Hypertension following acute ureteral obstruction is primarily due to:
A. volume expansion.
B. increased sodium absorption,
C. decreased sodium absorption,
D. nephron loss.
E. decreased renal blood flow.
Answer= D
Acute ureteral obstruction results in decreased renal blood flow due to preglomerular vasoconstriction with a resulting decreased filtered solute load, increased proximal tubular sodium absorption, and decreased sodium delivery to the distal tubule and macula densa. This results in increased renin release from the juxtaglomerular apparatus and may cause renin-mediated hypertension. Decreased sodium absorption does not occur and volume expansion would only be a problem in the setting of bilateral obstruction. Nephron loss would only occur with more prolonged obstruction. Sodium retention and/or volume expansion may cause hypertension with chronic bilateral obstruction.

84. After a second hypospadias repair, two fistulae appear when the urethral catheter is removed postoperatively. The catheter is replaced for two weeks but the fistulae do not heal. The best treatment is:
A. silver nitrate fulguration.
B. immediate fistulae repair.
C. place a suprapubic tube and wait six more weeks.
D. wait at least six months before repair.
E. replace the urethral catheter for another 3-4 weeks.
Answer= D
One month after hypospadias repair, it is highly unlikely that a fistula will heal spontaneously. Immediate intervention by a formal rerepair is contraindicated and a healing period of at least six months is necessary to allow edema to subside, allow revascularization, and optimize the chances for a successful secondary fistula closure.

85. A 52-year-old man has ESWL of a 22 mm diameter left renal pelvic stone. A 3 cm steinstrasse is found on a one-week post-treatment radiograph. He is asymptomatic, even though a renal ultrasound examination shows moderate hydronephrosis. He returns in one month with a fever of 103 degrees Fahrenheit. An IVP shows markedly delayed function of his left kidney. This problem should be managed with antibiotics and:
A. laser lithotripsy of the fragments.
B. percutaneous nephrostomy.
C. ureteral stent.
D. ureteroscopic extraction of the fragments.
E. ESWL of the most distal fragments.
Answer= B
This patient appears to be septic and his upper tract should be drained. Placement of a percutaneous nephrostomy tube is the only listed procedure that will definitively accomplish this goal. The "sand" may pass spontaneously with a nephrostomy tube in place, thereby avoiding basket
extraction, ureteroscopic extraction, or ESWL of the ureteral fragments. Ureteral injury may result from persistent attempts to extract the numerous particles.

86. The major cause of trabeculation in a man with bladder outlet obstruction is:
A. hypertrophy of the muscularis mucosa,
B. hypertrophy of the muscularis propria,
C. deposition of collagen type I.
D. deposition of collagen type ill.
E. deposition of elastin.
Answer= D
Bladder outlet obstruction results in detrusor wall thickening. Although hypertrophy of the muscularis is generally thought to be responsible for this finding, deposition of collagen, particularly type III is the more likely cause.

87. The major toxicity of gemcitabine in doses used to treat testis cancer is:
A. thrombocytopenia,
B. granulocytopenia,
C. mucositis,
D. acute renal failure.
E. peripheral neuropathy.

Answer= A
First-line cisplatin combination chemotherapy will cure 70-75% of patients with disseminated germ cell cancer. Salvage chemotherapy with standard-dose drugs not previously used, such as ifosfamide, will cure 20-25% of patients not cured with their initial induction chemotherapy. Third-line treatment with high-dose chemotherapy along with autologous bone marrow or peripheral stem-cell support has curative potential. Gemcitabine, a new nucleoside analog, is being studied in phase II trials of refractory germ cell cancer at Indiana University and in Germany. The major toxicity is hematologic, thrombocytopenia being the most common, followed by granulocytopenia. This new drug will play a major role in the treatment of refractory germ cell tumors. It is hoped that gemcitabine can be combined with other active drugs, as has been done with etoposide and ifosfamide in the past.

88. A 12-year-old prepubertal boy has severe right scrota! pain one day after being kicked in the groin. There is a blue area over the superior portion of the testis, but the examination is difficult due to a hydrocele. Urinalysis is normal. The next step is:
A. immediate exploration.
B. scrotal ultrasound with Doppler.
C. scrotal nuclear scan.
D. manual detorsion, exploration.
E. observation, anti-inflammatory medications.
Answer= B
A history of trauma is common in a patient with an acute scrotum. Although a testicular rupture is possible, a more likely possibility in a prepubertal boy is torsion of a testicular appendage with a blue-dot sign. Because the examination is difficult, an ultrasound is most appropriate.

89. Four months after a vaginal sling procedure, a woman requires clean intermittent catheterization for persistent urinary retention. The best next step is:
A. terazosin,
B. bethanechol.
C. urethral dilation.
D. continue clean intermittent catheterization,
E. urethrolysis.
Answer= E
Lifelong clean intermittent catheterization, although effective, is inappropriate if corrective surgery can restore normal function. Oral bethanechol has not been shown to effectively improve bladder contractility and is not indicated in the presence of bladder outlet obstruction Alpha-blockers such as terazosin and urethral dilation are options but represent suboptimal therapy when compared to anatomic correction by urethroiysis. The ability of videourodynamics to predict surgical success and whether repeat bladder neck suspension should be performed at the same time as urethroiysis is controversial. Most patients however resume normal voiding and are continent without repeat suspension.

90. During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:
A. upper tract bacteriuria.
B. transmission of pressure to the kidney,
C. intestinal mucous in kidney,
D. upper tract urine storage,
E. yo-yo effect and ureteral dilation.
Answer= A
After continent reconstruction with an intestinal segment, especially if intermittent catheterization is required to empty the reservoir, there is a high incidence of bacteriuria. An antirefluxing connection of the upper urinary tract protects the kidneys from ascending infection. Intra-reservoir pressure is transmitted to the upper urinary tract even in the absence of reflux. Successful continent reconstruction is predicated on an adequate low pressure reservoir.

91. A 74-year-old man with metastatic carcinoma of the prostate has been receiving leuprolide treatment for two years. He is asymptomatic except for severe hot flashes. The best way to eliminate the hot flashes is to:
A. stop leuprolide; start goserelin.
B. add megestrol acetate.
C. stop leuprolide; perform bilateral orchiectomy.
D. add flutamide.
E. stop leuprolide and follow serum PSA.
Answer= B
The optimal treatment of hot flashes from hormonal therapy is megestrol acetate (Megace). Although anecdotal reports suggest that DES may be helpful, a low and safe dose has not been determined. Although intermittent hormonal therapy has been studied in pilot series, its long-term comparability to continuous hormonal therapy is unknown. Neither orchiectomy nor flutamide would reduce the risk of hot flashes.

92. A 29-year-old woman has a ureteroscopic extraction of a 6 mm left lower ureteral calculus. A stone analysis reveals that its primary constituent is ammonium acid urate. A 24-hour urine is collected. The volume is 973 ml, and the sample contains little sodium, potassium, or citrate. She should be treated with:
A. withdrawal of her laxatives,
B. a liquid preparation of potassium citrate,
C. a liquid preparation of sodium citrate,
D. fluids and aliopurinol.
E. sodium bicarbonate and acetazolamide.
Answer= A
Ammonium acid urate stone formation has been reported in women with a history of laxative abuse. Gl loss of fluid and electrolytes leads to extracellular volume depletion and intracellular acidosis. Urine volume and the excretion of sodium, potassium, and citrate fall. All of the listed therapies would help, but withdrawal of the laxatives is the only choice that would reverse the underlying pathophysiology.

93. A 42-year-old man with azoospermia and primary infertility has an FSH of 15 (n! 1-10), small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have children is:
A. vasography,
B. serum FSH.
C. wife's evaluation,
D. testicular volume,
E. karyotype.
Answer= C
The presence of small volume testes with an elevated FSH suggests the presence of non-obstructive azoospermia. Most men with non-obstructive azoospermia will have sperm retrievable from the testes with multiple biopsies which can be used in conjunction with in vitro fertilization for the wife. The most important characteristic to determine eligibility for treatment wiII be the wife/s age and fertility. Screening for obstruction (with vasography) is not of value.

94. The least likely location for an ectopic ureteral orifice in a boy is the:
A. seminal vesicle,
B. vas deferens,
C. bladder neck,
D. prostatic urethra,
E. pendulous urethra.
Answer= E

The ureter buds from the mesonephric (Wolffian) duct and is absorbed into the bladder base. Incomplete absorption of the upper segment of a duplication may lead to ectopia in those structures of mesonephric origin (seminal vesicle or vas) or into those structures of urogenital sinus origin (bladder, prostatic urethra). Ectopia distal to the verumontanum would not be expected. The development of the distal urethra relates to the development of the penis, not of the urinary tract.

95. A 67-year-old man with muscle invasive transitional cell carcinoma of the bladder is interested in an orthotopic neobladder with cystectomy. A contraindication for anastomosis of a reservoir to the urethra is:

A. prior urethra! stricture.
B. Stage T1 cancer near the anterior bladder neck,
C. positive apical prostatic margin,
D. multifocal bladder tumors and CIS.
E. prostatic urethral CIS.
Answer= C

The presence of a tumor at the apical margin is a contraindication for an orthotopic diversion to the urethra. Patients with CIS of the prostatic urethra have a higher risk of urethral recurrence but for unknown reasons the incidence of urethral recurrence is much lower in patients undergoing an orthotopic diversion than those who have either an ileal conduit or a cutaneous continent diversion.

96. The mechanism of action of ketoconazole in the treatment of metastatic prostate cancer is:

A. inhibition of adrenal and testicular androgen production,
B. competition for androgen receptors on tumor cell membranes,
C. increased estradiol production,
D. direct cytolysis of tumor cells.
E. Leydig cell cytotoxicity.
Answer= A

At high doses, ketoconazole inhibits adrenal and gonadal androgen production by interfering with cytochrome P450-dependent 14-demethylation blocking the conversion of lanosterol to cholesterol and inhibition of the 17,20 iyase enzyme. It does not act to inhibit hypothalamic feedback mechanisms or compete for androgen receptors on the tumor cell membrane. Likewise, it is not directly cytotoxic to Leydig cells and is not an. indirect inhibitor of tumor replication.

97. A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis on a freshly voided urine specimen collected three hours later reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal ultrasound is normal. The next step is:

A. cystoscopy.
B. IVP.
C. urinary myoglobin.
D. urinary calcium/creatinine ratio.
E. urinalysis 72 hours later.
Answer= E

Hematuria after prolonged strenuous exercise, is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. The urinalysis in this benign condition is generally normal 48-72 hours after the exercise. Myoglobinuria is characteristically brown and the absence of RBCs makes this diagnosis.

98. The obliterated umbilical artery originates from which of the following arteries:

A. superior gluteal,
B. obturator,
C. middle sacral,
D. internal iliac,
E. externa! iliac.
Answer= D

The umbilical artery is the first visceral branch of the internal iliac artery and is very commonly a large trunk that in its proximal unobliterated section gives rise to the superior vesical artery as its first branch The obliterated umbilical artery is an important landmark in the pelvis as it sweeps lateral to the ureter at the pelvic brim. It can be used to mark the peritoneum in pelvic dissections and may be confused with the vas deferens in the male.

99. An 80-year-old woman has diffuse CIS of the bladder refractory to two six-week cycles of intravesical BCG. She is not a candidate for cystectomy because of medical comorbidity. The best management is:

A. thiotepa.
B. maintenance BCG.
C. mitomycin C,
D. valrubicin.
E. doxorubicin.
Answer= D

Valrubicin has recently received FDA approval for the treatment of BCG-refractory CIS in patients who are not candidates for cystectomy and is the correct choice. Maintenance BCG is not indicated in a patient who has not responded to 2 induction cycles. Mitomycin C has little if any activity against refractory CIS7and the combination of interferon and BCG has just entered clinical trials and little data to support their use are currently available.

100. The factor that is most predictive of sperm being present within the proximal vas deferens at the time of a vasectomy reversal is:

A. patient age.
B. testicular interstitial fibrosis,
C. duration of obstruction,
D. length of vas deferens removed,
E. antisperm antibody status.
Answer= C

In a review of 1469 vasectomy reversals, the vasovasostomy study group found that the factor most predictive of intravasal azoospermia is the duration of obstruction. The other factors are more predictive of fertility after a successful vasectomy reversal.

101. A ten-year-old boy with sickle cell disease has had an erection for 24 hours. The most appropriate management is:

A. transfusion with packed red cells,
B. corporal irrigation with heparinized saline,
C. intracorporal methylene blue,
D. cavernosum-spongiosum shunt.
E. hyperbaric oxygen.
Answer= A

The etiology of priapism in sickle cell disease is sickling of red blood cells and sludging of blood within the corporal sinuses without true thrombus formation. Despite the risk of AIDS, the most appropriate treatment is hypertransfusion with packed red cells to increase the hemoglobin to more than 10 gm/dl and to decrease hemoglobin S to 30% or less.

102. The lumbar triangle {triangle of Petit) is formed by the iliac crest and which muscles:

A. external oblique and latissimus dorsi.
B. internal oblique and latissimus dorsi.
C. external oblique and serratus posterior inferior,
D. internal oblique and serratus posterior inferior,
E. Latissimus dorsi and serratus posterior inferior.

Answer= A
The lumbar triangle of Petit is the weakest portion of the lumbar area and may assume clinical significance as the presentation of a lumbar hernia. This triangle is useful for muscle-splitting incisions for renal biopsy and proximal ureterolithotomy.

103. Unilateral nephrectomy in a healthy adult is most likely to increase the risk of:
A. proteinuria,
B. hypertension,
C. nephrosclerosis,
D. interstitial nephritis,
E. renal insufficiency.
Answer= A
Unilateral nephrectomy puts healthy adults at increased risk to develop asymptomatic proteinuria. Mild hypertension may occur during long-term follow-up. Unilateral nephrectomy does not lead to significant deterioration of glomerular filtration, nephrosclerosis, or interstitial nephritis.

104. During gated ESWL, shock wave generation is triggered by:
A. P wave.
B. heart rate.
C. QRS complex.
D. ST interval.
E. T wave.
Answer= C
In order to decrease the likelihood of cardiac arrhythmias, the shockwave is triggered by the "R" deflection of the QRS complex. Nonsynchronized ESWL treatment may induce arrhythmias in approximately 18%-20% of patients Nonsynchronized treatment will most likely induce ventricular premature contractions. No relationship between the induction of arrhythmias and gender, age, presence of heart disease, stone size, or stone location has been noted. Non-gated shockwave lithotripsy requires less time and analgesia.

105. The laboratory values that best characterize a patient at high risk for developing a pathologic postobstructive diuresis after placement of a urethra! catheter for treatment of urinary retention and bilateral hydroureteronephrosis are:

	K+	Ca+2	CO2	Phos
A.	↑	↓	↓	↑
B.	↓	↓	↔	↑
C.	↔	↓	↓	↓
D.	↓	↔	↓	↔
E.	↔	↓	↓	↔

Answer= A
The patients most likely to develop a postobstructive diuresis are those with hypertension, chronic obstruction, edema, azotemia and congestive heart failure. The laboratory findings most likely to accompany these individuals include hyperkalemia, hypocalcemia, acidosis and increased phosphorous.

106. The maintenance fluid requirement for 24 hours for a 20 kg child with a fever of 39 degrees Celsius is approximately:
A. 1400 ml.
B. 1500 ml.
C. 1600 ml.
D. 1700 ml.
E. 1300 ml.
Answer= D
The calculation of maintenance fluids is based on the child's standard basal caloric (SBC) expenditure using the Holiday-Segar method. A 20 kg child would require 1000 ml (100 ml per kg for the first 10 kg) plus 500 mf (50 ml per kg for the second 10 kg) per 24 hours at baseline. An additional 10% would be required for each degree above 37.8, so that an additional 12.5% would be added. 1500 plus 188 is 1688, closest to 1700 ml.

107. A 62-year-old man becomes oliguric 24 hours after cystectomy with ileal conduit. The BUN/creatinine rise from 15/1.3 pre-op to 40/1.7 post-op. The central venous pressure is 3 cm H20. Both ureters are stented. The next step in management is:
A. administer a cardiac inotropic agent,
B. restore adequate circulating volume,
C. administer furosemide.
D. begin low dose dopamine infusion,
E. begin a mannitol infusion.
Answer= B
Pre-renal azotemia is a common problem in the perioperative period. In this case stents are in place mitigating against obstruction. Pre-renal acute renal failure is suggested by oliguria and a > 20:1 ratio of BUN/creatinine. The initial management to restore adequate volume status.

108. A 26-year-old immigrant woman previously immunized with BCG has vague left flank pain. IVP shows renal parenchymal calcifications and distorted polar calyces. Voided urine collections for tuberculosis cultures will require:
A. early morning collections.
B. collections between 4 and 8 P.M.
C. collections with an acid fixative.
D. animal inoculation because of prior BCG.
E. serial cultures to exclude false positive results because of prior BCG.
Answer= A
Voided urine cultures to detect tuberculosis are best obtained as early morning samples. Late afternoon collections are useful for schistosomiasis. Cultures may take weeks to be confirmed positive. The efficacy of BCG has tremendous geographic variation yet there is no impact on culture results. There is no longer a need for animal inoculations to confirm the diagnosis of tuberculosis.

109. A MAG-3 diuretic renogram is performed for unilateral hydronephrosis. The affected kidney has a split function of 45%. This indicates:
A. the kidney is functioning at just below half of normal,
B. almost half of the tracer remains in the pelvis after washout,
C. the absolute GFR is decreased by 25%.
D. 45% of tracer has been extracted by the kidney at two minutes,
E. the affected kidney is functioning at a normal level.
Answer= E
The split function represents the percentage each kidney contributes to total renal function as indicated by the amount of tracer in the kidneys at two minutes following injection of the tracer. The two numbers always add up to 100% and the margin of error is about 5% either direction. Therefore, the affected kidney is functioning at a normal level.

110. A 63-year-old man undergoes partial nephrectomy in a solitary kidney. The renal artery is clamped for 40 minutes without the use of surface hypothermia. Post-operatively, the creatinine rises from 1.5 mg/dl to 2.5 mg/dl. The renal structure most likely to have been injured is:
A. cortical collecting duct,
B. distal convoluted tubule,
C. juxtaglomerular apparatus,
D. proximal convoluted tubule,
E. medullary thick ascending loop of Henle.
Answer= E
The clinical scenario described is ischemic acute tubular necrosis. This is characterized by tubular cell injury which may be sublethal

or lethal During normal renal function the medulla operates at the brink of hypoxia due to countercurrent diffusion of oxygen in the vasa rectae. During prolonged ischemia medullary hypoxia is intensified and high metabolic requirements of the structures located in the outer medulla are most sensitive to injury. The medullary thick ascending limb of Henle is rich in the energy requiring Na+-K+ ATPase and is most sensitive to ischemic damage.

111. An 18-year-old boy with an ileal conduit and creatinine clearance of 20 ml/min is considered for urinary undiversion. An ultrasound reveals bilateral chronic pyelonephritis. A VCUG demonstrates a bladder capacity of 40 ml and reflux into an 8 cm right ureteral stump. A left retrograde ureterogram shows a 2 cm ureteral stump. Urodynamic evaluation demonstrates a small capacity bladder but is otherwise normal. The most important contraindication to undiversion is:

A. right ureterovesical reflux,
B. short left ureteral stump,
C. reduced bladder capacity,
D. reduced renal function,
E. chronic pyelonephritis.
Answer= D

None of the technical considerations including reflux, ureteral stump length, or small bladder capacity are deterrents to undiversion Chronic pyelonephritis and scarring are common in this situation. Only severely reduced renal function (GFR < 30ml/m2) is a relative contraindication.

112. A 30-year-old man has a right orchiectomy for nonseminomatous germ cell testicular tumor. Two consecutive sperm counts determined within one week after orchiectomy both demonstrate eight million sperm per cc. The best description for this situation is:

A. the patient is permanently subfertile.
B. sperm counts are invalid; spermatogenesis is severely depressed by surgery.
C. the patient is subfertile but may subsequently become normal,
D. the patient is subfertile because of an elevation in hCG.
E. the patient has carcinoma in situ of the remaining testis.
Answer= C

Subfertility, based upon abnormal sperm concentrations in patients with newly-diagnosed testicular cancer can be seen in between 17% and 69% of patients. Hypothesized causes include endocrine, autoimmune, and psychological factors as well as coexisting carcinoma in situ. Nevertheless, a number of these patients will have normalization of semen parameters with further follow-up.

113. A 70-year-old woman has mixed stress and urge incontinence. Her urodynamic study demonstrates an involuntary detrusor contraction with a voiding pressure of 40 cm H20 and a Valsalva leak point pressure of 40 cm H20. She does not improve with oxybutynin. The next step is:

A. urethra! plug,
B. estrogen replacement,
C. periurethral collagen injection.
D. Burch urethropexy,
E. ephedrine.
Answer= C

The urodynamic results are consistent with detrusor instability (Dl) with adequate detrusor contractility but intrinsic sphincteric deficiency (ISD). Ephedrine is a non-catecholamine sympathomimetic agent which has been shown to stimulate the release of norepinephrine. The net result of alpha-adrenergic stimulation is an increase in the resting urethral pressure, which on a theoretic basis should enhance continence due to sphincter abnormalities, but there is no effect on Dl Estrogen replacement may help but has not been shown to be effective for ISD with or without Dl. Burch urethropexy is also not effective for ISD. Collagen injection results in approximately 80% improvement in ISD. Improvement in ISD can decrease severity of detrusor instability symptoms. Data concerning urethral plug for ISD and Dl are lacking.

114. A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:

A. radical eschar debridement,
B. split thickness skin grafts as soon as possible,
C. antibiotic therapy and topical cleansing with water,
D. remove the urethra! catheter and insert a suprapubic tube,
E. observe until the wound begins to granulate.
Answer= D

It a urethral catheter is used in a genitalia bum, it should be removed after 72 hours to prevent urethral slough and fistula formation. All viable tissue should be preserved. Minimal debridement should be used in conjunction with topical antimicrobials. After granulation occurs, split thickness skin grafts are applied.

115. The primary effect of parathyroid hormone (PTH) is to facilitate:

A. Vitamin D3 activity on the gut.
B. calcium reabsorption in the renal tubule,
C. phosphate reabsorption from bone,
D. intestinal absorption of calcium.
E. Vitamin D3 activity on the renal tubule.
Answer= B

Parathormone raises calcium concentrations by increasing renal reabsorption of calcium from the glomerular filtrate, enhancing resorption from bone, and influencing gastrointestinal absorption. Parathormone stimulates both bone formation and resorption and affects gastrointestinal calcium absorption indirectly through regulation of Vitamin D synthesis.

116. A 15-year-old boy involved in a motor vehicle accident has multiple injuries, He has been oliguric for 24 hours. Ultrasound reveals no hydronephrosis and a minimal amount of urine in the bladder. Urinary dipstick and urine sediment are normal. The following laboratory values are obtained: Serum creatinine 3.0 mg/dl Serum potassium 5.5mEq/l Urine osmolality 525mOsm/l Urine sodium 18mEq/l Fractional excretion of sodium<1% The next step is:

A. peritoneal dialysis,
B. volume replacement.
C. hemodialysis,
D. renal scan,
E. serum myoglobin.
Answer= B

The renal concentrating ability is not abolished in prerenal azotemia. Tubular function is also preserved, thus the urinary sodium concentration decreases. The intact tubular function in prerenal azotemia causes concentration of the urinary nitrogenous wastes. This leads to an elevated urine to plasma creatinine ratio, generally exceeding 40:1. Patients with acute renal failure would have increased fractional excretion of sodium and decreased urine osmolality. These patients frequently have an abnormal urinary sediment with renal tubular epithelial cells and tubular casts If this patient had myoglobinuria, the dipstick would be positive although the urine would be negative for red cells.

117. A 65-year-old man develops urinary retention. Physical examination demonstrates a large benign feeling prostate gland. Urinalysis and serum PSA are normal. The serum creatinine is 3.0 mg/dl. An ultrasound reveals moderate bilateral

hydronephrosis with dilation of the ureters extending to the bladder. His is placed on urethral catheter drainage. Ten days later, the serum creatinine level is 1.8 mg/dl and ultrasound shows mild hydronephrosis. The most appropriate management is:

A. continue catheter drainage.
B. doxazosin.
C. insert ureteral stents.
D. perform prostatectomy.
E. clean intermittent catheterization.

Answer= D

One of the absolute indications for surgical intervention with bladder outlet obstruction due to BPH is renal insufficiency and hydronephrosis. However, operative morbidity is reduced if catheter drainage is first used to allow improved renal function. After ten days, creatinine has improved and it is doubtful further drainage will be useful. Prostatectomy should be performed. The radiographic findings may be chronic at this point. Medical management is contraindicated in the presence of renal dysfunction.

118. A five-year-old boy who had urethral valves fulgurated as a newborn is referred because of wetting day and night. An ultrasound shows bilateral hydronephrosis and a VCUG shows a trabeculated bladder, no reflux and no residual valve tissue. The next step in evaluation should be:

A. antegrade pressure perfusion study,
B. cystoscopy.
C. postvoid bladder ultrasound.
D. 24-hour urine volume and urodynamics.
E. diuretic renography.

Answer= D

Boys with urethral valves often have problems with bladder training because of a combination of factors. Often those with early severe obstruction will have a persistent tubular defect resulting in polydipsia and polyuria. (These patients often are acidotic in the first few months of life.) Furthermore, these patients will also have small bladders relative to the large urine volume which will generate rather high pressures during filling (poor compliance). Although there is no persistent mechanical obstruction, they may Incompletely empty the bladder because they are continuously struggling against elevated intravesical pressures and may develop a sphincter dyssynergia plus decreased sensation to increased bladder pressures This often results in wetting day and night The most useful studies to define this process would be a 24-hour collection for volume (and creatinine clearance) and urodynamics.

119. A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on digital rectal exam. Serum PSA is 3.0 ng/mi. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The most appropriate recommendation is:

A. observation.
B. repeat prostate biopsies in three months,
C. cycloserine for six months.
D. INH for six months.
E. INH and rifampin for six months.

Answer= A

Prostatic granulomas are being recognized with increasing frequency in men following intravesical BCG therapy. Although long-term outcome is uncertain, the granulomas are generally asymptomatic and no therapy is recommended. This patient had a prior normal digital rectal exam of the prostate and his serum PSA is normal. Thus, it is unlikely he has prostate cancer and further biopsies are no more indicated in him than in any other age matched male patient.

120. A 38-year-old man has diarrhea and loses two liters of isotonic fluid. He drinks two liters of water for fluid replacement. These fluid shifts result in:

A. two liters of water added to the ECF.
B. decreased renin secretion,
C. decreased aldosterone secretion,
D. decreased ADH secretion.
E. water moving from ICF to ECF.

Answer= D

The entire two liters of isotonic fluid are lost from the ECF. Since the loss is isotonic, the osmolality of the ECF did not change and no water moved out of the cells. The two liters of ingested pure water are distributed throughout the entire body water; one-third remains in the ECF, and two-thirds move into the cells. The addition of pure water lowers the osmolality. Even though the decreased ECF volume would stimulate ADH secretion, the reduced osmolality would inhibit it via the hypothalamic osmoreceptors. Osmoreceptor input usually predominates during such "conflicts" unless the ECF volume depletion is very large. Renin and aldosterone secretions would increase because of the decreased ECF volume.

121. A four-year-old girl with spina bifida is wet between urethral catheterizations. Her detrusor leak point pressure (LPP) is 50 cm H20 and Valsalva LPP is 70 cm H20. She is started on hyoscyamine (Levsin). A repeat urodynamic study will reveal:

	Detrusor LPP	Valsalva LPP
A.	unchanged	unchanged
B.	unchanged	increased
C.	decreased	increased
D.	decreased	decreased
E.	decreased	unchanged

Answer= A

The detrusor LPP is determined by the resistance of the external sphincter. Anticholinergic medication such as hyoscyamine does not effect the external sphincter which is a striated muscle. Therefore, there should be no change in the LPP The effect of the anticholinergic medication on the detrusor will increase bladder compliance by increasing the volume of urine stored at a given pressure The dosing pressure of the proximal urethra will not be affeded.

122. A newborn boy has a left-sided abdominal mass. Ultrasound reveals an infiltrative mass replacing the lower third of the left kidney. The right kidney appears echogenic, but is otherwise normal. The next step is:

A. bilateral needle biopsy of the kidneys, then chemotherapy,
B. exploratory laparotomy and bilateral biopsy.
C. left nephrectomy followed by chemotherapy.
D. left lower pole partial nephrectomy followed by chemotherapy.
E. left nephrectomy and surveillance.

Answer= E

This disease process is most likely a mesoblastic nephroma and should be distinguished from a Wilms' tumor by the patient's age and the fact that it is infiltrative. Newborn kidneys are normally echogenic; hence, the right kidney is normal The best treatment for a mesoblastic nephroma is nephrectomy and surveillance.

123. In idiopathic hypercalciuria, the primary effect of thiazide diuretics is:

A. hypocalciuric effect on the proximal tubule,
B. decreased intestinal absorption of calcium,
C. increased calcium reabsorption by the distal tubule,
D. lowered production of calcitriol (Vitamin D).
E. elevation of urinary citrate levels.

Answer= C

The primary effect of thiazides with regard to preventing hypercalciuria is at the renal level; both in the distal and possibly in the proximal tubule To a lesser extent, thiazides may also decrease intestinal absorption of calcium. Thiazides may result in a slight increase in PTH levels; also they may result in a decrease rather than increase in urinary citrate levels. Thiazide has no reported effect on catcitriol levels.

124. A 16-year-old obese girl with myelodysplasia, mental retardation, and poor manual dexterity has total urinary incontinence and is presently treated with diapers alone. She has normal upper tracts and infected urine on occasion. She has recurrent perineal ulcers which do not heal. The best method of management is:

A. vesicostomy.
B. colon conduit,
C. bladder augmentation,
D. ureterosigmoidostomy.
E. intermittent clean catheterization.
Answer= B

Although intermittent clean catheterization is the treatment of choice for neurogenic bladder patients, in this situation it would be a poor choice. Not only would she potentially be undependable but there is good possibility that she would physically be unable to catheterize. Therefore, intermittent clean catheterization would be contraindicated and for the same reasons augmentation would be absolutely contraindicated. Ureterosigmoidostomy is not an acceptable diversion in the myelodysplastic patient because of the unreliable anal sphincter mechanism. Vesicostomy is usually not an acceptable diversion for the older patient because of the pubic hair and problems with the stoma appliance fit. The colon conduit would be well suited in this clinical situation.

125. A 35-year-old woman with juvenile onset diabetes is being treated with intermittent self-catheterization. She has episodes of incontinence between catheterizations. The most effective therapy is:

A. tolterodine.
B. ephedrine.
C. terazosin.
D. diazepam.
E. bethanechol
Answer= B

This patient is being treated with intermittent self-catheterization for detrusor areflexia secondary to diabetes mellitus. Diabetes is also associated with sympathetic neuropathy which may decrease continence at the level of the proximal smooth muscle sphincter. Therefore, treatment with ephedrine, which is primarily an alpha-sympathomimetic agent, may be expected to increase resistance at this level. The success of ephedrine is at times only transient because of the development of insensitivity (tachyphylaxis). Tolterodine, an anticholinergic, is not indicated in cases of bladder areflexia. Terazosin an alpha-blocker, is obviously not a rational choice and neither is diazepam since reducing outlet resistance is not the goal Finally, bethanechol is not effective at improving bladder contractility and would not be expected to augment sphincter activity.

126. A 55-year-old obese woman with multiple medical problems is scheduled for a cystectomy and urinary diversion. Pre-operative IVP shows mild bilateral hydroureteronephrosis. At the time of cystectomy the mesentery of the bowel is shortened and infiltrated with fat. The most appropriate type of diversion is:

A. continent cutaneous diversion,
B. bilateral cutaneous ureterostomies,
C. antirefluxing transverse colon conduit,
D. ileal conduit with loop stoma (Turnbull),
E. antirefluxing sigmoid colon conduit
Answer= D

The Turnbull loop stoma (ureteroileostomy) is the most appropriate diversion in this obese patient with a short mesentery. There will be less tension on the mesentery as it traverses the abdominal wall and it will be easier to obtain a good stomal bud above skin level Cutaneous ureterostomy requires a ureter dilated to at least 1 cm. thick walled and well vascularized. In adults with normal ureters there is a high incidence of stricture from ischemia of the cutaneous portion of the nondilated ureter. There is a higher incidence of ureterointestinal stricture using an antireflux technique with the transverse colon. The sigmoid colon may not be the best choice with cystectomy as some surgeons ligate the internal iliac arteries which may compromise rectal blood supply. The short mesentery would also preclude using an ileal or ileo-cecal continent reservoir.

127. After seven days of therapy with clindamycin for a Bacteroides fragilis pelvic infection, a 47-year-old man develops persistent bloody diarrhea, abdominal pain, and fever. A stool assay for Clostridium difficile is positive. In addition to discontinuing the clindamycin, the best management is:

A. opiates.
B. cefoxitin.
C. metronidazole.
D. chloramphenicol.
E. cholestyramine.
Answer= C

Clindamycin may cause pseudomembranous colitis. The syndrome, which may be fatal, is apparently due to the production of an endotoxin by clindamycin-resistant strains of Clostridium difficile. If significant diarrhea occurs, clindamycin should be discontinued. Agents that inhibit peristalsis, such as opiates, should not be given because they prolong and worsen the condition. The most active drugs against C. difficile are vancomycin and metronidazole administered for 7 to 14 days. Since metronidazole is also an alternative to clindamycin for the treatment of serious anaerobic infections, it would be the appropriate choice for this patient. Cefoxitin and cholestyramine are less effective.

128. The most common genetic alterations in bladder cancer are:

A. mutations of the retinoblastoma tumor suppressor gene,
B. deletions of genetic material on chromosome 9.
C. activating mutations of the ras oncogene,
D. mutations of the p53 tumor suppressor gene,
E. deletions or mutations of the p16 tumor suppressor gene.
Answer= B

Loss of genetic material on chromosome 9, which can affect p16 and a number of other genes, is commonly found in both superficial and invasive bladder tumors, and represents the most common genetic alteration in this disease. In contrast, mutations of p53 and Rb are found primarily in high grade or invasive tumors. Mutations of the ras oncogene are uncommon.

129. A seven-year-old girl with myelodysplasia is on CIC. Renal ultrasounds show newly developed moderate hydronephrosis. Her leak point pressure was 35 cm H20 two years ago, and is now 75 cm H2O. The likely cause of this change is:

A. recurrent UTI.
B. vesicoureteral reflux.
C. poor patient compliance with CIC regimen,
D. sphincter fibrosis from denervation,
E. urethralstricturefromintermittentcatheterization.
Answer= D

An increase in leak point pressure (LPP} in children with myelodysplasia can result from two principle factors. Detrusor sphincter dyssynergy can develop with evolution of the neurologic

lesion, or in someone with urethral denervation that causes an initially low LPP, muscular fibrosis can produce an obstructive condition.

130. A 55-year-old woman develops incisional drainage two days after uncomplicated abdominal hysterectomy for uterine fibroids. The creatinine concentration of the fluid is 35 mg/dl. Abdominal ultrasound shows moderate left hydronephrosis. Retrograde pyelography demonstrates complete obstruction of the distal left ureter and a wire cannot be passed. She is afebrile and her white blood cell count is normal. The best management is:

A. percutaneous drain.
B. transureteroureterostomy.
C. nephrectomy.
D. ureteral reimplantation.
E. observation.
Answer= D

Ureteral injuries occur in approximately 1-2% of pelvic gynecologic procedures. The present case is consistent with a major ureteral injury. In the absence of major risk factors (previous radiation, malnutrition malignancy, abscess), immediate intervention and repair is indicated. Percutaneous nephrostomy and antegrade stenting, if feasible, would be a reasonable alternative.

131. The vitamin that may reduce bladder cancer recurrence in patients receiving intravesical BCG is:

A. K.
B. B12.
C. A
D. D '
E. B2 (riboflavin).
Answer= C

In a randomized prospective trial, Lamm et al showed that a combination of multivitamins plus 40,000 units of Vitamin A, 100 mg of Vitamin B6, 2,000 mg of Vitamin C and 400 units of Vitamin E was associated with a 40% recurrence rate among BCG treated patients while those receiving only multivitamins had an 80% recurrence rate. While it was impossible to determine which vitamin was conferring the most benefit, the authors speculated that Vitamin A was the most active agent, in vitro studies have shown that Vitamin A promotes differentiation of normal and neoplastic cells. Epidemiological studies suggest that carotenoids may have a protective effect in multiple human malignancies including carcinoma of the head and neck, lung, breast, cervix, prostate, and bladder. Moreover, deficiency of Vitamin A results in replacement of transitional epithelium by squamous keratinized epithelium that may exhibit increased mitotic figures, growth into the lamina propria, and vascularization.

132. A 50-year-old man has a right ureteral transection at the level of the pelvic brim during repair of an aortic aneurysm. Preoperatively his BUN was 28 mg/dl, and his creatinine was 1.9 mg/dl. After placement of an aortoiliac vascular graft, the best treatment of the ureteral injury is:

A. ureteral ligation, nephrostomy, and re-evaluation in two weeks.
B. ureteroureterostomywithomentalwrap.
C. transureteroureterostomy above the level of the graft anastomosis.
D. cutaneous ureterostomy with a ureteral stent,
E. ipsilateral nephrectomy.
Answer= B

If a ureteral injury is diagnosed at the time of operation, primary ureteroureterostomy can usually be performed. Omentum should be used to protect the repair and isolate the repair from the vascular graft In addition an indwelling ureteral stent can be utilized. This form of management has usually been successful. Additional surgery might be required with a cutaneous ureterostomy. It would be unwise to sacrifice the kidney in a man with decreased renal function. It is also inappropriate to consider a transureteroureterostomy in a patient with an aneurysm.

133. A seven-year-old boy with myelodysplasia is wet despite frequent intermittent catheterization. Videourodynamics demonstrate no reflux with leakage at 300 ml and 20 cm H20 pressure around a 12 Fr urethral catheter. After catheter removal he voided at 12 cc/sec with no residual. The best therapy is:

A. artificial GU sphincter,
B. anticholinergics and ephedrine.
C. bladder neck ligation and appendix urethra (Mitrofanoff).
D. periurethral collagen.
E. implant of bladder tube (Kropp procedure).
Answer= A

This young man has adequate bladder volume and compliance, but has very poor urethral resistance. Anticholinergics would not be indicated, and ephedrine may have temporary but doubtful long-term effect. The patient tolerates intermittent catheterization so that bladder-neck ligation is unnecessary. The Marshall suspension is inadequate therapy for these patients, and augmentation is unnecessary. The Kropp procedure would secure continence, but would mean the patient is totally dependent on catheterization. Because this patient has excellent compliance and is capable of compete bladder emptying, he is an ideal candidate for the artificial GU sphincter.

134. The manifestation of the von Hippel-Lindau syndrome that tends to be clustered only within a subset of affected families is:

A. renal cell carcinoma.
B. pheochromocytoma.
C. retina! angioma.
D. cerebellar hemangioblastoma.
E. epididymal papillary cystadenoma.
Answer= B

Penetrance for all of the manifestations of VHL is incomplete. Pheochromocytoma is found only in certain families with the VHL syndrome, primarily those with a missense mutation of the VHL gene. All of the other manifestations of VHL are found in most families with the syndrome.

135. A 65-year-old man with insulin-dependent diabetes chooses a vacuum constriction device for treatment of erectile dysfunction. After attempted use he reports insufficient rigidity for penetration. The most likely explanation is:

A. inadequate cavernosal arterial flow,
B. fibrosis of the corpora spongiosum,
C. corporal muscle dysfunction,
D. diabetic neuropathy,
E. improper device use.
Answer= E

The vacuum constriction device should create penile rigidity sufficient for vaginal penetration in almost all impotent men who are treated. As long as the patient does not have significant intracorporal scarring from severe Peyronie's disease or a prior infected penile implant, adequate rigidity should be obtained. Vacuum constriction devices even work in patients who have had penile prothesis removed. Often patients who are not given adequate instruction initially will not apply a sufficient amount of vacuum to fully distend the penis or do not use a small enough compressive ring at the base to achieve adequate rigidity. In these cases, instruction and reassurance is usually all that is necessary.

136. A 21-year-old man had a right inguinal orchiectomy for a clinical Stage I mixed germ cell tumor. He was observed and seven months later, a 4 cm mass is seen on the abdominal CT

scan in the interaorto-caval region. The chest x-ray, beta-hCG, and AFP are normal. The best next step is:
A. retroperitoneal radiation.
B. right modified template retroperitoneal lymphadenectomy.
C. platinum based chemotherapy,
D. percutaneous biopsy of retroperitoneal mass,
E. full bilateral retroperitoneal lymphadenectomy.
Answer= C
This patient has an abdominal relapse after observation. Correct management is 3 cycles of BEP (bleomycin, etoposide, cisplatin) for disseminated germ cell tumor in good risk patients. Biopsy of the mass could miss elements of residual cancer and should not be performed. Although the original tumor showed elements of seminoma, radiation would not be the preferred treatment. Retroperitoneal lymphadenectomy is usually not performed for masses greater than 3 cm on CT scan, avoiding double therapy in these patients.

137. The most commonly acquired infectious disease following blood transfusion is:
A. cytomegalovirus.
B. HIV.
C. hepatitis A.
D. hepatitis B.
E. hepatitis C.
Answer= E
Infectious entities acquired after transfusion are hepatitis, CMV and HIV. Post-transfusion hepatitis in 90% of cases is caused by hepatitis-C. The incubation period is between two weeks and six months. Most patients are relatively asymptomatic. A serologic test is now available for its diagnosis such as the tests available for hepatitis B. Cytomegalovirus and HIV are less frequently transmitted in blood than hepatitis.

138. A 23-year-old man has sudden onset of fever (103 degrees Fahrenheit), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:
A. voided urine after prostatic massage,
B. urethra.
C. catheterized urine,
D. expressed prostatic fluid,
E. mid-stream urine.
Answer= E
This patient undoubtedly has acute prostatitis. Prostatic massage is to be avoided in patients with acute prostatitis as this may cause bacteremia. Consequently, c and d are not only unnecessary for diagnosis but might well be harmful. The diagnosis can be made from culture of the urine, as the organism causing the prostatitis is almost always present in the bladder urine during acute prostatitis. Cultures from the urethra are of no particular value in this case. Instrumentation of the lower urinary tract should be avoided in acute prostatitis; furthermore, it is seldom necessary to catheterize a male just to obtain a urine culture.

139. The physical finding that suggests the most immediate potentially life-threatening condition in the neonatal period is:
A. bladder exstrophy,
B. unilateral renal mass,
C. ambiguous genitalia,
D. aniridia,
E. scrotal mass.
Answer= C
Although the presence of bladder exstrophy, or a renal or scrotal mass, mandates prompt surgical referral, these are not life-threatening conditions. Aniridia is associated with Wilms' tumor and will require long-term follow-up. Ambiguous genitalia may represent the sequelae of salt-losing congenital adrenal hyperplasia, which can result in hypovolemic shock if not treated.

140. of persistent low-grade fevers and malaise and mild abdominal discomfort over the diversion. Her creatinine is 1.2 mg/dl and an IVP shows mild left hydronephrosis. A urine culture is positive for a pan sensitive E. coli. After treating the infection, the best next step is:
A. urine acidification.
B. program of mechanical pouch irrigation,
C. prophylactic antibiotic administration,
D. increase size of drainage catheter,
E. pouch-o-gram to evaluate reflux.
Answer= B
It is not uncommon to develop pouchitis after construction of a continent urinary reservoir This is especially true in the early post - operative period when mucous accumulation can be high. A simple program of mechanical irrigation can decrease the incidence of infections, though asymptomatic colonization may not decrease. Using a larger catheter may help urine drainage but usually does not drain all the mucous. Prophylactic antibiotics or urine acidification are useful in patients who do not respond to simple measures and remain persistently infected. A pouch-o-gram is not the first step in evaluation and treatment at this time.

141. A 16-year-old phenotypic girl undergoes evaluation for amenorrhea. Testes are found on laparoscopic examination. Karyotype is 46 XY. If the gonads are not removed, the tumor most likely to develop is:
A. seminoma.
B. Leydig cell tumor,
C. gonadoblastoma.
D. embryonal cell carcinoma,
E. teratoma.
Answer= A
Complete testicular feminization is associated with a female phenotype and these patients often have a delayed presentation unless the gonads are palpable in the inguinal area earlier in childhood. These children have a 46 XY karyotype and the syndrome is due to lack of androgen receptor in the genitalia. There is an increased risk of tumor in the testes and this is most often seminoma. The risk of tumor formation increases after puberty and more than 20% of patients will develop malignancy after age 30 if the gonads are not removed. Gonadoblastoma is a tumor that may occur in intersex states associated with dysgenetic gonads or mosaicism.

142. Newer extracorporeal shock wave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:
A. smaller focal volume,
B. lower focal pressure,
C. larger focal volume,
D. higher focal pressure,
E. shorter rise time.
Answer= A
A reduction in the focal volume is a geometric result of enlarging the aperture of the shock wave generator. Piezoelectric lithotriptors cause little pain, but have a small focal volume and high focal pressure. The method of shock wave generation determines the rise time. Electrohydraulic shock waves have shorter rise times than piezoelectric shock waves. The higher retreatment rates associated with newer lithotriptors are, in part, due to the smaller focal volume. Accurate placement of the stone in the focus is critical with these lithotriptors.

143. A 24-year-old asymptomatic man is referred for evaluation of genital warts because his sexual partner was found to have a lesion on routine pelvic exam. Physical examination does not reveal any gross lesions on the genitalia or perineum. However, magnified penile surface scanning reveals aceto-white positive lesions on the penile shaft. The best treatment is:

A. observation.
B. topical trichloroacetic acid,
C. topical podophyllin.
D. interferon injection.
E. CO2 laser fulguration.

Answer= A

Penile condyloma are frequently found in the sexual partners of patients with active disease. In general, these lesions are benign except for the association of subtypes 16,18, and 31 with cervical dysplasia and possibly penile cancer. Subtypes 6 and 11 are benign. Treatment of these lesions with either topical agents or fulguration is successful at eradicating the visible lesion but has a recurrence rate of approximately 90% within one year. Therefore, the best treatment of an asymptomatic patient without lesions and a benign subtype is observation only.

144. The most common cause of a narrowed, pipe-stem deformity of an ileal conduit is:

A. vascular insufficiency,
B. chronic urinary infection,
C. extrinsic obstruction,
D. regional enteritis,
E. parastomal hernia.

Answer= B

A pipe-stem deformity of an ileal conduit is due to vascular insufficiency, usually caused by an inadequate mesenteric blood supply. This leads to strictured areas along the course of the loop, resulting in a thin, noncompliant loop with decreased peristalsis and propulsion of urine. Upper tract obstruction and deterioration can be the end product of this process. Treatment usually requires replacement of the entire conduit.

145. Cystine stones form primarily as a consequence of:

A. increased concentration of urinary cystine,
B. a deficiency of substances that inhibit crystal growth,
C. an excess of substances that promote crystal growth,
D. increased binding of cystine by matrix (mucoproteins).
E. excessive urinary acidity.

Answer= A

Cystine stone formation is the only type of metabolic stone disease which can be determined specifically based on the urinary concentration of a specific ionic constituent. In most patients, once the urinary concentration of cystine increases to more than 200 mg of cystine per liter of urine, cystine crystals will precipitate out of solution with subsequent formation of cystine calculi. If one can reduce the cystine concentration below 200 mg per liter, either with increased urinary volume or reductions in cystine excretion, cystine stone disease can be prevented. However, a high percentage of patients with cystine stone disease will also have concurrent metabolic abnormalities and appropriate metabolic evaluation with subsequent treatment should also be instituted.

146. A 65-year-old man with bladder outlet obstruction secondary to BPH and a history of a CVA undergoes a TURP. He continues to experience urgency and frequency three months postoperatively. The most likely cause of his symptoms is:

A. detrusor instability,
B. urethral stricture,
C. bladder neck contracture.
D. UTI
E. residual obstruction.

Answer= A

An "overactive bladder" can result from a cerebrovascular accident, the resulting symptoms of which may not improve after relief of outlet obstruction. These patients will frequently respond to anticholinergic medication.

147. A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Replacement therapy with cortisone and fludrocortisone is instituted. Three years later, she complains of visual disturbances and is noted to have skin hyperpigmentation. The most likely explanation is:

A. Addison’s disease.
B. pituitary adenoma.
C. excessive cortisone replacement.
D. excessive ACTH production.
E. ectopic melanocyte-stimulating hormone secretion.

Answer= B

Ten-20% of patients who have bilateral adrenalectomy for Cushing's Syndrome later develop pituitary tumors which are almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation, due to melanocyte stimulating hormone release by corticotropic releasing hormone, headaches, and visual disturbances are due to the expanding adenoma that is shown by skull x-rays or CT scans of the sella turcica. Pituitary basophilic adenoma that was initially postulated by Cushing as causing the syndrome named for him has, in fact, rarely been a factor.

148. Patients with hyperparathyroidism can best be distinguished from those with renal or absorptive hypercalciuria by measurement of:

A. serum calcium.
B. fasting urine calcium.
C. post-oral calcium load urine calcium.
D. fasting urine cyclic AMP.
E. post-oral calcium load urine cyclic AMP.

Answer= A

Hyperparathyroidism produces a combination of absorptive, renal, and bony calcium defects. There is hyperabsorption of calcium through the gut with increased reabsorption of bone and an increased renal loss of calcium due to hypercalcemia in spite of increased reabsorption. The most significant diagnostic difference, other than elevated serum calcium, that separates patients with hyperparathyroidism from those with absorptive hypercalciuria or renal leak hypercalciuria is a moderate increase in parathyroid hormone levels.

149. To know the yearly total number of newly-diagnosed prostate cancer cases in the United States, one would need to know the:

A. prevalence,
B. incidence,
C. lead-time bias,
D. positive predictive value,
E. length-time bias.

Answer= B

Incidence is a direct estimate of the probability of risk of developing a disease during a specific time. In prostate cancer there were approximately 180,000 new cases diagnosed in 1999. This does not necessarily correlate with clinical or biological significance. Prevalence defines the incidence multiplied by the duration of observation. In prostate cancer, it refers to the number of men who actually have the disease at any particular point in time rather than how many will develop it during a particular time period.

150. The best technique for penile nerve block prior to epispadias repair is:

A. raise a wheal around the base.
B. midline deep infiltration inferior to the inner symphyseal band,
C. raise a wheal around the base and midline deep infiltration,
D. deep infiltration at 10 and 2 o'clock.
E. deep infiltration at 10 and 2 o'clock and a wheal around the base.

Answer= E

In epispadias the neurovascular bundle is not midline but displaced laterally at about the 10 and 2 o'clock positions A local penile block usually requires the deep penile nerves to be blocked to give adequate glans anesthesia and a wheal at the base of the penis to block the nerves of the skin of the shaft.

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aua 2002

1. A 30-year-old man with an HIV infection is evaluated for frequency, urgency, and dysuria. The most likely cause of these symptoms is:
A. bacterial cystitis.
B. Candida cystitis,
C. mycobacteria! cystitis,
D. bladder hyperreflexia.
E. bladder hyporeflexia.
Answer=D
Lower tract urological disorders in human immunodeficiency virus (HIV) infections are due to infections, obstruction, or neurological causes. Approximately 60% of voiding disorders are due to neurological abnormalities, e.g... encephalitis, cerebral toxoplasmosis, etc. Neurogenic voiding dysfunction portends a poor prognosis.

2. A five-day-old boy has vomiting and dehydration. His serum C02 is 12mEq/l, K 5.5mEq/l, and creatinine 2.2 mg/dl. A VCUG demonstrates posterior urethral valves and bilateral Grade IWV vesicoureteral reflux. The best initial management is:
A. percutaneous cystostomy.
B. percutaneous nephrostomies,
C. valve ablation,
D. urethral catheter drainage,
E. cutaneous vesicostomy.
Answer=D
The management of the infant with posterior urethral valves depends somewhat on the severity of the obstruction and the degree of any renal dysplasia present. The main problems arise in management of the infant with severe obstruction and compromised renal function with dehydration acidosis, and sepsis. Initially, a small infant feeding tube; placed transurethrally; can provide bladder drainage. If initial bladder drainage does not result in satisfactory clinical improvement and the neonate remains medically unstable, temporary supravesical diversion should be considered. Non-intubated; cutaneous pyelostomies provide the most appropriate direct, non-obstructed form of supravesical urinary diversion, with the fewest long-term sequelae.

3. Prostate specific antigen is:
A. a protease inhibitor.
B. a serine protease.
C. complexed primarily to trypsin.
D. expressed primarily by prostatic stromal cells.
E. expressed exclusively by prostatic epithelial cells.
Answer=B
Prostate specific antigen (PSA) is a serine protease that liquefies the ejaculate coagulated by degrading seminal proteins. Protease inhibitors are used to treat HIV. PSA is complexed primarily to alpha-1 antichymotrypsin and is expressed primarily, but not exclusively, in prostatic epithelial cells. PSA is expressed in small amounts by cells of cloacal origin.

4. During placement of malleable prosthesis, a distal urethral perforation occurs. The contralateral cylinder has not been placed. The best management is:
A. place urethral catheter and complete the implantation.
B. repair urethra and implant the contralateral prosthesis.
C. repair urethra and place a suprapubic tube only.
D. repair urethra, proceed with implantation, and place a suprapubic tube.
E. place urethral catheter and terminate the procedure.
Answer=E
If urethral perforation occurs during dilation, it is best to abandon the procedure, divert the urine with a urethral catheter, and return on a later date. If the contralateral prosthesis has already been placed and there is no septal perforation, then it may be left in place. The urine should be diverted. Urethral repair would be difficult and is unnecessary.

5. A three-year-old girl undergoing cardiac catheterization for coarctation of the aorta is found to have a horseshoe kidney. Chromosomal studies will likely show:
A. XO/XX.
B. XX Y.
C. XO.
D. trisomy 18.
E. trisomy 21.
Answer=C
The association of coarctation of the aorta and horseshoe kidney is indicative of Turner's syndrome. Horseshoe kidneys are reported to occur in as many as 10% of females with Turner's syndrome. The karyotype would therefore be 46 XO. Other associated conditions can include short stature; webbed-neck; aortic valve disease; VSD; ASD; and renal duplication.

6. The effect of testosterone on prostatic cells requires:
A. 5-alpha-reductase.
B. estradiol.
C. steroid-binding protein.
D. dehydroepiandrosterone.
E. aromatase.
Answer= A
The major intracellular androgen in prostatic cells is dihydrotestosterone (DHT) This is formed by the action of 5-alphareductase on free testosterone which gains access to prostatic cells by diffusion from plasma. DHT has an important permissive role in the development of BPH Finasteride is the first clinically available 5-alpha-reductase inhibitor used to treat BPH.

7. A 50-year-old man with end-stage polycystic kidney disease is on chronic hemodialysis. His predialysis potassium is consistently in excess of 5.6 mEq/l. He is dialyzed three times per week for 4-1/2 hours per treatment. The most likely cause of his hyperkalemia is:
A. dietary indiscretion,
B. chronic alkalosis,
C. gastrointestinal bleeding,
D. inadequate dialysis,
E. adrenal insufficiency.
Answer=A
Hyperkalemia is usually not a problem for patients with chronic renal failure. Even end-stage kidneys are capable of some potassium excretion, and significant amounts of potassium may be tost via the intestinal tract Potassium is restricted in a chronic renal failure diet and the associated protein restriction also curtails potassium intake. While all of the answers are possibilities, excessive intake of potassium is the most common cause of hyperkalemia.

8. A seven-year-old myelomeningocele patient has failed anticholinergic therapy and clean intermittent catheterization for a non-compliant neurogenic bladder. The patient undergoes a mechanical bowel prep and receives perioperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he has acute, severe hypotension. The most likely cause is:
A. dehydration secondary to bowel prep.
B. sepsis.
C. latex allergy.
D. antibiotic allergy.
E. unrecognized vena caval compression.
Answer=C
Dehydration would usually present at the time of induction of anesthesia. Although sepsis is possible, it is unlikely to be acute. Unrecognized bleeding or pressure on the vena cava are unlikely given the operative exposure necessary Increasing numbers of patients with myelodysplasia are allergic to latex. Latex precautions should be considered in all spina bifida patients.

9. A 55-year-old man has fever and progressive irritative urinary symptoms. A urine culture is sterile. He fails to respond to intravenous antibiotics. TRUS demonstrates septated hypoechoic regions in the prostate. The largest hypoechoic area measures 3x5 cm. Optimal treatment is:
A. transperineal drainage,
B. transrectal drainage,
C. transurethral unroofing,
D. transrectal aspiration for culture,
E. oral antifungal therapy.
Answer=C
Prostatic abscess is characterized by hypoechoic regions or cavities on TRUS Initial urinary cultures are frequently negative and intraoperative cultures are necessary. Transurethral unroofing of the

abscess is the recommended treatment of choice for those who fail to respond to IV antibiotics.

10. Phosphodiesterase inhibitors cause penile smooth muscle relaxation by inhibiting:
A. calmodulin binding,
B. production of cGMP.
C. production of cAMP.
D. degradation of phospholipase C.
E. degradation of cGMP.
Answer=E
cGMP is a second messenger for nitric oxide (NO) that activates protein kinases promoting smooth muscle relaxation. cGMP is degraded to GMP by phosphodiesterase A phosphodiesterase inhibitor potentiates the effect of cGMP Ca++ binding to calmodulin is the first step in the initiation of smooth muscle contraction which activates myosin-light chain kinase.

11. A 24-year-old man has acute severe left flank pain. Urinalysis Is normal. He denies a history of urinary stone disease or recent trauma. The next step is:
A. reassurance.
B. non-contrast helical CT scan,
C. abdominal ultrasonography.
D. I VP.
E. MRI Scan.
Answer=B
A clinical history of acute renal colic should not be dismissed due to a normal urinalysis without evidence of microhematuria. A substantial number of patients with acute renal colic will present with a normal urinalysis. Non-contrast CT is the study of choice to confirm the diagnosis of nephro- or ureterolithiasis Additionally, CT imaging can exclude other peritoneal or retroperitoneal pathology. IVP with tomography can substantially increase radiation dosage to the patient and frequently does not image ureters in their entirety. Optimal IVP requires a reasonable bowel prep and experienced technicians and radiologists; frequently neither of which are available during evening hours. Abdominal ultrasonography can evaluate kidneys for stone disease however, it is consistently a poor modality to image ft on-dilated ureters. Reassurance without confirming a diagnosis may be misleading. MRf is a poor imaging modality to assess for urinary stone disease.

12. Detumescence is mediated by the:
A. cavernous nerves,
B. sympathetic nen/ous system,
C. parasympathetic nen/ous system,
D. nervi erigentes {S2, S3, S4).
E. pudendal nerves.
Answer=B
Detumescence is caused by a discharge of the sympathetic nervous system to the cavernous muscle. The pudendal nerves (peripheral nervous system) do not affect the cavernosa directly. The parasympathetic nerves; which include S2; S3, S4; the nervi erigentes, and cavernous nerves, do not cause detumescence but tumescence

13. A 16-year-old girl with known inflammatory bowel disease develops disabling frequency, urgency, and nocturia. She has recurrent E. colt UTIs. Ultrasound shows mildly dilated upper tracts bilaterally. A CT scan shows a thickened bladder wall. Cystoscopy reveals an inflamed trigone without discrete evidence of a fistula. The most important form of therapy for her is:
A. intravenous antibiotics.
B. temporary diverting colostomy.
C. a temporary suprapubic cystostomy.
D. medical management of the bowel disease.
E. exploratory laparotomy with appropriate bowel resection.
Answer=D
The most common urologic complication of inflammatory bowel disease is cystitis. This can happen with or without an actual enteric-urinary fistula. Management should be directed at the inflammatory bowel disease and should be managed non -surgically if at all possible.

14. The first event to occur with normal micturition is:
A. relaxation of the prostate and prostatic capsule.
B. opening of the bladder neck.
C. relaxation of the external striated sphincter.
D. contraction of the bladder body.
E. contraction of the bladder base.
Answer=C
The first recordable event to occur with normal micturition is relaxation of the external striated sphincter. This is followed by a coordinated contraction of the bladder and opening of the bladder neck

15. A 74-year-old woman has symptomatic stress incontinence and detrusor instability, but would like to avoid surgery. The best pharmacologic approach is:
A. oxybutynin.
B. tolterodine.
C. imipramine.
D. terazosin.
E. ephedrine.
Answer=C
Imipramine has both a strong direct inhibitory action on bladder smooth muscle and a stimulant effect on the bladder outlet. The net result is that it promotes urinary storage by preventing detrusor instability and increasing urethral resistance Phenylpropanolamine; phenylephrine; and ephedrine are sympathomimetic agents. The net result of alpha-adrenergic stimulation is an increase in the resting urethral pressure; which on a theoretic basis should enhance continence due to sphincter abnormalities, but there is no effect on detrusor instability Oxybutynin and tolterodine have anticholinergic and smooth muscle relaxant effects and have no role in the treatment of stress incontinence. Terazosin would exacerbate this patient s stress incontinence

16. A 30-year-old man has recurrent nephrolithiasis. The stones are composed of guaifenesin and ephedrine. The next step is discontinuation of these medications and:
A. psychological counseling.
B. potassium citrate.
C. hydrochlorothiazide.
D. allopurinoi.
E. sodium bicarbonate.
Answer=A
These stones develop in patients who consume large quantities of preparations containing guaifenesin and ephedrine; mainly for the stimulant properties of the latter drug. The stones are radiolucent on standard x-ray imaging studies but appear radiodense on computed tomography. A high percentage of these patients have a history of substance abuse. Therefore; psychological counseling is recommended.

17. Renovascular hypertension which is likely to respond to angiographic or surgical intervention is usually characterized by:
A. marked elevation in plasma renin values.
B. elevation of renal vein over inferior vena caval concentrations of renin by at least 25%.
C. elevation of ipsilateral renal vein renin by at least 50% over peripheral and contralateral renal vein renin.
D. elevation of ipsilateral renal vein renin by 50% over peripheral plasma renin, and by 25% over the contralateral renal vein renin.
E. marked elevation of ipsilateral and contralateral renal vein renin as well as peripheral plasma renin.
Answer=D
The response of renovascular hypertension to surgery or angiographic intervention depends upon the type of lesion and its location Renin is a mediating substance for renovascular hypertension and a search for its origin in helpful Significantly elevated renin from one renal vein and not the other leads to localization of a candidate for intervention. Further evaluation by imaging and provocative studies involving ACE inhibitors may also confirm the diagnosis and help decide whether a surgical cure is necessary

18. A 68-year-old man has left flank pain. IVP demonstrates a normal right kidney but non-function on the left. CT scan reveals an 8 cm left renal mass in the hilar region, and a

suggestion of a renal vein thrombus. Chest x-ray and blood chemistries are normal. The next step is:
A. inferior vena cavogram.
B. MR! scan,
C. angiogram.
D. retrograde pyelogram.
E. transesophageal echocardiogram.
Answer=B
The presentation in this patient is most consistent with renal vein invasion and obstruction from a renal cell carcinoma Prior to radial nephrectomy, it is essential to know the limit of the thrombus and therefore MRI is the most appropriate next step.

19. Two years after bilateral ureteroneocystostomies for vesicoureteral reflux, a nine-year-old girl has sepsis and vomiting. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, C02 12mEq/l, and K 6.5mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:
A. cystoscopy and ureteral catheterization,
B. diuretic renal scan.
C. bilateral percutaneous nephrostomies.
D. cutaneous vesicostomy.
E. bilateral loop cutaneous ureterostomies.
Answer=C
This girl is likely to have post-operative ureteral stenosis with azotemia. Decompression will be necessary to medically stabilize her before reconstruction This is most reliably accomplished by percutaneous nephrostomies which will not interfere with ultimate surgical revision of the ureterovesical anastomosis.

20. Two years ago, a 60-year-old man underwent distal ureterectomy and ureteroneocystostomy for Stage Ta (O), Grade II transitional cell carcinoma of the ureter. A recent IVP is normal. Surveillance cystoscopy reveals a friable lesion near the new ureteral orifice managed with transurethral resection. Pathology reveals nephrogenic adenoma. The next step is:
A. partial cystectomy with ureteral reimplantation,
B. re-biopsy with random bladder biopsies,
C. intravesical BCG.
D. periodic cystoscopy,
E. suppressive antibiotic therapy.
Answer=D
Nephrogenic adenoma is an unusual lesion which can mimic papillary transitional cell carcinoma in appearance Most appear to be associated with local irritation and one series reported a higher incidence in patients who underwent renal transplantation and ureteral reimplantation No treatment other than endoscopic resection is required

21. A 58-year-old obese man has 400 ml of bile-stained fluid coming from his drain two days following transperitoneal laparoscopic unroofing of a large right renal cyst. He is afebrile and his bowel sounds are normal. The leakage persists over the next five days despite nasogastric suction. KUB and upright abdominal x-rays are normal. The next step is:
A. feeding jejunostomy tube,
B. laparotomy,
C. parenteral nutrition,
D. somatostatin.
E. small bowel suction (Kantor) tube.
Answer=C
Immediate reoperation for fistula closure is not indicated as mostfistulae heal with parenteral nutrition. Parenteral nutrition has significantly improved the mortality and prognosis of patients with enterocutaneous fistulae and has not only increased the rate of spontaneous fistula closure but also improved nutritional status of patients needing repeated operations.

22. The vein draining into the dorsal (posterior) aspect of the left renal vein is the:
A. lumbar.
B. gonadal.
C. phrenic.
D. adrenal.
E. azygos.
Answer=A
While the gonadal and adrenal veins can be easily appreciated early in the dissection, often large lumbar vessels draining posteriorly from the left renal vein require special double ligature and division. These become manifest in the course of complete mobilization of the vein an effort to give the transplant surgeon maximum length of left renal vein.

23. One week following partial nephrectomy for a renal tumor, there is 500 cc per day of urine from a flank drain. A retrograde pyelogram demonstrates a filling defect in the upper ureter causing partial obstruction. The best management is:
A. observation.
B. re-exploration of the kidney,
C. ureteroscopy.
D. percutaneous nephrostomy.
E. Internal ureteral stent plus urethral catheter.
Answer=E
Urinary fistula is the most common complication after partial nephrectomy. In the absence of obstruction of the collecting system most fistulas will close spontaneously within several weeks and do not require further therapy. An obstruction of the collecting system, typically due to a clot may delay or prevent fistula closure and should be treated to promote closure. The best approach is placement of a double J ureteral stent and a Foley catheter - placement of a stent alone will permit urine from the opposite kidney to reflux up the stent and may actually increase the fistula output. Placement of the Foley catheter will prevent this from occurring. An internal stent is less invasive than a percutaneous nephrostomy and more comfortable for the patient. Early re-exploration of a kidney after partial nephrectomy is rarely indicated and usually results in loss of the renal unit

24. A 75-year-old woman has recurrent cystitis. Physical examination demonstrates a Grade I cystocele and atrophic vaginitis. A postvoid residual is 45 cc. IVP and VCUG are normal. The best management is:
A. vaginal pessary,
B. oral estrogen,
C. intravaginal estrogen,
D. cranberry juice,
E. prophylactic antibiotics.
Answer=C
The female lower urinary tract contains a significant number of estrogen receptors. After menopause, diminished levels of glycogen are produced as a result of decreased estrogen production. This alters the vaginal flora resulting in a decrease of the normally dominant lactobacilfi. Vaginal pH then rises and can result in overgrowth of enteric organisms As a result there may be frequent ascending urinary tract infections. In a randomized double blind study intravaginal estriol decreased the incidence of urinary infection in post menopausal women with recurrent infections Although oral estrogens and cranberry juice have been used, they have not been consistently shown to decrease the rate of recurrent infections Additionally, oral estrogens have significant systemic effects.

25. A 54-year-old woman who underwent radiation therapy for cervical cancer two years ago has microscopic hematuria. Transurethral resection of a lesion 2 cm above the left ureteral orifice reveals an inverted papilloma. Three days post-operatively, she develops a vesicovaginal fistula. The best treatment is:
A. immediate transvaginal repair,
B. transvaginal repair in six months,
C. immediate transabdominal repair,
D. transabdominal repair in six months,
E. urinary diversion.
Answer=C
In a woman with no evidence of abscess formation or a fluid collection: there is little need to wait an extended period of time before fistula repair. The abdominal approach provides better access to a radiation induced fistula and allows an omental pedicle graft to be interposed between the bladder and vaginal wall Obliteration of dead space, good bladder drainage; control of infection and interposition of healthy tissue are critical elements to fistula closure.

26. A two-year-old boy has a right radical orchiectomy for yolk sac tumor of the testis. The preoperative elevated level of alpha-

fetoprotein returns to normal, and CT scan of the chest and abdomen are normal. In addition to long-term follow up with periodic metastatic work-up, appropriate management includes:
A. retroperitoneal lymphadenectomy.
B. retroperitoneal lymphadenectomy and combination chemotherapy for six months.
C. actinomycin D and vincristine for six months,
D. bleomycin, etoposide, and platinum for three months,
E. surveillance.
Answer=E
Stage I prepubertal yolk sac testis tumors are best treated initially by orchiectomy alone, with periodic follow-up for metastatic disease. There is no advantage to early retroperitoneal lymphadenectomy and/or prophylactic chemotherapy.

27. A four-year-old boy with previously treated urethral valves and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:
A. vasopressin,
B. salt restriction,
C. postvoid catheterization,
D. decrease oral fluid intake,
E. increase frequency of voiding.
Answer=E
Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction Lasix and salt restrictions as well will not usually result in reduction in urine volume. These patients, by definition, will not respond to vasopressin. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this young man to get up once or twice per night. The character of this bladder will have major impact on therapy. If the bladder has reduced compliance with a reduced volume, anticholinergic therapy should be considered.

28. A 55-year-old woman has unilateral hydronephrosis on a routine follow-up IVP two years after radical cystectomy and refluxing colon conduit diversion for a Stage T2, Grade III transitional cell carcinoma of the bladder. She received pelvic irradiation 12 years ago for cervical carcinoma. The most appropriate initial study to evaluate her is:
A. CT scan of the abdomen and pelvis,
B. urinary cytology,
C. loop endoscopy,
D. antegrade nephrostogram.
E. balloon dilation.
Answer=B
Early hydronephrosis in this patient suggests recurrent tumor Urinary cytology from the conduit will be positive with a high-grade tumor in greater than 80% of cases. If the cytology is positive, then a CT of the abdomen and pelvis with 5 mm cuts would be the next most appropriate study. Loopogram, loop endoscopy, and percutaneous nephrostomy could be performed later if the former two studies were inconclusive.

29. A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 (normal is 0.5-1.6) ng/ml/hr. The next step is:
A. renal angiography,
B. renal venous renin sampling,
C. captopril renogram,
D. radical nephrectomy,
E. partial nephrectomy.
Answer=E
Reninomas are rare renal tumors associated with hypertension, hypokalemia, and a solid small renal mass. The critical test is plasma renin activity which is usually extremely high. Almost all are shown on CT scan as a hypodense mass, which is hypovascular. In most cases it is not necessary to control the renal pedicle and an arteriogram is not mandatory. The patient should be treated with nephron sparing surgery i e resection or partial nephrectomy because these tumors are benign in nature.

30. A 64-year-old woman underwent a IVlarshall-Marchetti-Krantz urethropexy five years ago and a transvaginal urethropexy one year ago, but still has severe urinary incontinence. She leaks with coughing and sneezing, and also without any physical activity. She denies urge incontinence. The best diagnostic test is:
A. urethral pressure profile.
B. videourodynamics.
C. cystometry.
D. VCUG.
E. CMG-EMG.
Answer=B
Although it can be argued that not all women initially presenting with urinary incontinence need urodynamics, few deny the need for in-depth testing after failed surgeries. A CMG or cystogram alone offer limited information. Only videourodynamics can ascertain whether involuntary contractions are present elevated voiding pressures suggestive of obstruction, and whether recurrent urethral hypermobility exists. An abdominal (Valsalva) leak point pressure would also be performed to ascertain whether intrinsic sphincter deficiency exists A urethral pressure profile alone can not assess sphincter function

31. A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:
A. remove intrauterine device,
B. metronidazole for patient,
C. metronidazole for patient and partner,
D. ciprofloxacin for patient,
E. ciprofloxacin for patient and partner.
Answer=B
Bacterial vaginosis results from an alteration of normal vaginal flora with a predominance of Lactobacillus species and high concentrations of anaerobic bacteria Diagnosis can be confirmed with identification of clue cells, a homogenous vaginal discharge, a vaginal pH > 4.5, and a malodorous fishy vaginal discharge. It is more prevalent in lesbians. Risk factors may include multiple sexual partners, a new sexual partner use of an intrauterine device, and douching Treating the patient is as effective as treating the patient and partner. Symptoms may recur in 1/3 of patients after treatment. Metronidazole is the treatment of choice.

32. Which type of urinary tract reconstruction is most likely to be associated with the following serum electrolyte abnormalities: sodium 115mEq/l, chloride 85mEq/l, potassium 6.2mEq/l, bicarbonate 15mEq/l:
A. orthotopic ileal bladder,
B. gastrocystoplasty.
C. jejunal conduit,
D. ureterosigmoidostomy.
E. sigmoid colon conduit.
Answer=C
Jejunal diversion results in a hyponatremic; hypochloremic, hyperkalemic state which is due to the high permeability of the jejunum to fluid and electrolytes. Diversions using bowel distal to the jejunum are associated with hyperchloremic metabolic acidosis. Patients with gastrocystoplasty will be more likely to have a metabolic alkalosis.

33. The optimal tissue for early coverage of the perineum following an avulsion skin injury is a{n):
A. island skin flap,
B. musculocutaneous flap,
C. full thickness skin graft,
D. split thickness skin graft
E. dermal graft.
Answer=D
A split thickness skin graft takes much more readily than a full thickness skin graft or a dermal graft because capillary ingrowth into the cutis graft is more rapid. Skin flaps and musculocutaneous flaps have no role in the acute management of avulsion injuries

34. Which of the following is a promoter of urinary stone crystallization:
A. glycosaminoglycans.
B. bikunin.
C. magnesium.
D. matrix.
E. pyrophosphate.
Answer=D
Factors that determine kidney stone formation include supersaturation; inhibitors and promoters of crystallization, and intrarenal anatomy. Promoters are matrix and Tamm-Horsfall protein whereas inhibitors are citrate; magnesium, pyrophosphate; bikunin; glycosaminoglycans, and osteopontin.

35. A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:
A. hemodialysis.
B. Kayexaiate enema.
C. intravenous sodium bicarbonate and calcium gluconate.
D. intravenous concentrated glucose and regular insulin in the same infusion.
E. intravenous concentrated glucose and regular insulin in separate infusions.
Answer=C
Most (99%) of total body potassium is located within cells. Extracellular potassium is closely regulated to maintain resting membrane potentials that are critical to nerve and muscle function. Potassium is secreted by the distal convoluted tubule and collecting duct. When this mechanism is impaired in renal failure, hyperkalemia (plasma K in excess of 5.3 mEq/l) occurs. This patient is nearing a crisis in terms of cardiac function Calcium gluconate immediately but transiently mitigates the potassium effect. Sodium bicarbonate lowers plasma K+ concentration within an hour. Hemodialysis and Kayexalate cannot be initiated as quickly. Insulin and glucose also take 30-60 minutes to work.

36. A 42-year-old man is seen for prostate evaluation. His paternal grandfather died of prostate cancer at age 62. Digital rectal examination is normal. His PSA is 3.5 with a free to total ratio of 20%. The next step is:
A. transrectal ultrasonography,
B. yearly PSA and DRE beginning at age 50.
C. ultrasound directed biopsies of the prostate,
D. antibiotic therapy for 4 weeks, then repeat PSA.
E. yearly PSA and DRE starting now.
Answer=C
Patients with first-degree relatives with prostate cancer, particularly at a young age, are at increased risk for the development of prostate cancer. A PSA of 3.5 while still within the normal range, is above normal for a 42-year-old man. Because of the total PSA and positive family history, he should undergo prostate biopsy.

37. A 65-year-old post-menopausal woman with decreased bone density develops her third calcium oxalate renal calculus in five years. Metabolic evaluation reveals a mildly elevated urinary calcium after calcium loading, consistent with Type I absorptive hypercalciuria. The most appropriate treatment is:
A. sodium cellulose phosphate,
B. orthophosphate,
C. hydrochlorothiazide,
D. potassium citrate,
E. magnesium oxide.
Answer=C
Sodium cellulose phosphate can restore normal calcium excretion in those with absorptive hypercalciuria. However, it can lead to a negative calcium balance. Thiazides are appropriate treatment for those with mild to moderate absorptive hypercalciuria and those at an increased risk of bone disease such as post-menopausal women and growing children. Thiazide therapy induces an increase in bone density Thiazides may lose their hypocalciuric effect after two to four years, and patients may be switched to sodium cellulose phosphate for a short period of time. Orthophosphates are indicated for the management of absorptive hypercalciuria, Type III, where a renal leak of phosphate is thought to stimulate 1:25-(OH>-2 D synthesis Orthophosphates inhibit this synthesis

38. A five-year-old girl has developed daytime wetting and is still wet at night. She has had two UTIs with dysuria and frequency. Her renal ultrasound shows mild-moderate bilateral hydronephrosis. She has a red birthmark on her lower spine, just above the gluteal cleft. The test most likely to identify the cause of her wetting is:
A. VCUG.
B. MRI scan,
C. cystoscopy.
D. MAG-3 diuretic renogram,
E. radionuclide cystogram.
Answer=B
This girl has secondary incontinence with hydronephrosis The dermal-vascular malformation of her lower spine raises the suspicion of a spinal cord problem, most likely spinal cord tethering leading to neurogenic bladder dysfunction. An MRI is most likely to yield the underlying cause of her wetting. A VCUG is also needed to rule out reflux and assess bladder emptying, but this is unlikely to determine the cause of her wetting.

39. A 40-year-old man has grand mal seizures, gross hematuria, and bilateral flank masses. His blood pressure is 180/120 mm Hg. The patient is mentally retarded. An IVP reveals enlarged kidneys with calyceal deformities bilaterally. The BUN and serum creatinine are normal. The most likely diagnosis is:
A. autosomal dominant polycystic kidney disease,
B. von Hippel-Lindau disease,
C. tuberous sclerosis.
D. Sturge-Webber syndrome.
E. bilateral renal cel! carcinoma with cerebral metastases.
Answer=C
Tuberous sclerosis is classically described as a triad consisting of seizures (80% of cases), mental retardation (60% of cases) and adenoma sebaceum (75% of cases). The kidneys of these patients may have cysts, angiomyolipomas, or both. Angiomyolipomas occur in 40%-80% of patients and frequently cause hematuria.

40. Nephrogenic adenoma of the bladder is associated with:
A. a higher incidence in women.
B. CMV infection.
C. adenocarcinoma of the bladder,
D. cystitis cystica,
E. prior bladder injury.
Answer=E
Nephrogenic adenomas of the bladder are found usually in men and are associated with a prior history of bladder injury or chronic urinary tract infection Nephrogenic adenomas are not associated with cystitis glandularis and associated only infrequently with bladder malignancies.

41. Luteinizing hormone (LH)-timed intrauterine insemination would most likely benefit subfertile couples with:
A. significant levels of male antisperm antibodies.
B. severe oligospermia.
C. cen/icai stenosis and low semen volume.
D. asthenospermia.
E. cervical incompetence.
Answer=C
The cervical mucus is a major barrier to sperm that are poorly motile in the oligospermic man. From a naive viewpoint it would seem that bypassing this biological barrier by intrauterine insemination would be highly successful form of therapy for the subfertile man. Motility and transport though the cervical mucus represent only a small portion of the many complex functions of which sperm must be capable for fertilization and early embryonic development to occur. Therefore, it is not surprising that intrauterine insemination is not effective universally in couples with male factor infertility. The placement of sperm directly into the uterine cavity, carefully timed to ovulation, will not compensate for acrosomal defects and abnormalities of sperm-egg interaction, which are common in men with oligospermia Nevertheless, sperm processing and intrauterine insemination can have an appropriate role in the management of carefully selected subfertile couples. It is an ideal form of therapy for cervical factor infertility and for men with retrograde ejaculation and significant semen volume abnormalities. Men with significant levels of antisperm antibodies and fewer than 2 million motile sperm

after washing are not likely to achieve conception with intrauterine insemination

41. An otherwise healthy 62-year-old man undergoes radical cystectomy and ileal neobladder for invasive bladder cancer. Three weeks post-operatively he complains of watery stools and a cystogram demonstrates a fistula between the neobladder and small intestine. He is afebrile, has no abdominal tenderness, and there is no sign of intraperitoneal extravasation. Both the transurethral catheter and suprapubic tube irrigate freely. The best management is:
A. replace the urethral catheter with a larger catheter.
B. low residue diet.
C. percutaneous nephrostomies.
D. somatostatin.
E. operative repair.
Answer=B
Neobladder enteric fistulas occur rarely after orthotopic urinary diversion In a healthy, nontoxic patient with no sign of abdominal sepsis a trial of nonoperative repair is indicated initially. Small fistulas may heal with simple dietary modification such as a low residue diet. Larger or persistent fistulas may require the patient to be NPO and treated with intravenous TPN Operative repair is indicated for persistent fistulas or in the acutely ill patient

43. A 45-year-old man has two days of perineal discomfort, dysuria, urinary frequency, fever, and difficulty voiding. Urinalysis reveals bacteruria and pyuria. Physical examination reveals an enlarged prostate. He has a history of four symptomatic E. coli urinary tract infections over the past year He finished his last course of antibiotics one week ago. Before antibiotic treatment is restarted, which culture should be obtained:
A. mid-stream urine.
B. urine by suprapubic aspiration.
C. expressed prostatic fluid.
D. pre- and post-prostatic massage voided urine and prostatic fluid.
E. initial voided urine.
Answer=A
This man likely has chronic bacterial prostatitis This is usually manifested by recurring recurrent infections with the same organism While lower urinary tract bacterial localization is helpful in identifying the prostate as a nidus of infection if the urine is sterile, it is useless if there is bacteruria since all specimens will grow large numbers of bacteria. This man now has symptomatic bacteruria and his infection cannot be localized. If localization of the prostate is desired, the urine should be sterilized (perhaps with nitrofurantoin for three days) and then initial voided, mid-stream and post-pro static massage urinary specimen should be obtained along with the prostatic fluid specimen.

44. The most important factor in maintaining continence after radical prostatectomy is preservation of the:
A. nervi erigentes.
B. bladder neck,
C. puboprostatic ligaments,
D. external sphincter,
E. levator ani.
Answer=D
While preservation of the bladder neck, nervi erigentes, and the size of the bladder neck have all been associated with continence, the only factor which is generally accepted as being related to urinary control after radical prostatectomy is preservation of the external sphincter

45. In addition to bladder wall fibrosis, systemic cyclophosphamide therapy may result in:
A. chronic renal insufficiency,
B. renal papillary necrosis,
C. chronic renal hematuria,
D. transitional cell carcinoma,
E. chronic prostatitis.
Answer=D
Many series have demonstrated that patients who have received cyclophosphamide are at a significantly higher risk of developing carcinoma of the bladder. The average risk of patients who received therapy for non-Hodgkin's lymphoma was 4.5 -fold higher than average Patients who received higher doses had a 14 5-fold increased risk A review of 12 patients with cyclophosphamide-associated bladder cancer found all to be of high grade, n this series, conservative management (TUR) was associated with a high mortality rate and long-term survival was best in patients treated with early radical cystectomy.

46. Furosemide (Lasix) acts primarily by inhibiting sodium reabsorption in the:
A. collecting duct,
B. proximal tubule,
C. ascending limb of Henle's loop,
D. descending limb of Henle's loop,
E. distal tubule.
Answer=C
Furosemide (Lasix) is a loop diuretic. Loop diuretics act mainly by inhibiting the Na+-K+-2CI- cotransport system in the thick ascending limb of Henle's loop. This results in inhibiting sodium reabsorption and a solute diuresis.

47. A 25-year-old woman reports eight urinary tract infections in the past year, all of which are associated with lower urinary tract symptoms only. Which of the following is most likely to be a risk factor:
A. tampon use.
B. parity.
C. douching.
D. daily bicycle riding,
E. spermicide use.
Answer=E
Studies of risk factors for recurrent urinary tract infection demonstrate that spermicide use increases urinary tract infections by decreasing normal vaginal flora and decreasing vaginal pH. Several studies have demonstrated the other four choices are not common risk factors. Douching is rarely significantly increased in patients with recurrent urinary tract infections. Tampon use, parity, and exercise are not risk factors for recurrent cystitis

48. Which of the following is most likely to cause painful gynecomastia:
A. leuprolide.
B. leuprolide and flutamide.
C. ketoconazole.
D. bicalutamide.
E. finasteride.
Answer=D
Breast tenderness and enlargement during hormonal therapy for prostate cancer is due to an altered ratio of serum estrogens and testosterone Leuprolide inhibits pituitary LH release so there is no rise in serum estrogens Ketoconazole inhibits androgen and estrogen synthesis Bicalutamide inhibits both end organ and central androgen receptors so that both LH and androgen levels increase with loss of negative feedback inhibition

49. A six-year-old boy sustains blunt abdominal trauma in a motor vehicle accident. He has tender ecchymosis on the right flank. Blood pressure is stable. His urine sediment has 10 RBC/hpf. The next step is:
A. CT scan.
B. IVP.
C. ultrasonography.
D. cystogram.
E. observation.
Answer=A
All children with suspected renal trauma and any degree of hematuria should be evaluated radiographically. In contrast, adults with gross hematuria or microscopic hematuria plus hypotension are candidates for imaging One reason for the discrimination is that large amounts of catecholamines released in injured children may sustain blood pressure in the face of hypovolemia. The CT scan is the most useful imaging modality in this situation.

50. The most life-threatening electrolyte abnormality that develops during the diuretic phase of acute tubular necrosis is:
A. hyponatremia.
B. hypomagnesemia.
C. hypocalcemia.

D. hypokalemia.
E. hyperkalemia.
Answer=D
During the massive urinary sodium losses occurring during the diuresis phase of ATN, potassium is also lost resulting in life-threatening hypokalemia During diuresis the Na+/k+ pump is overwhelmed and exchange fails to occur

51. Men with a history of infertility and a low volume {0.5-1.0 ml) of noncoagulating ejaculate on semen analysis most often have:
A. retrograde ejaculation,
B. prostatic hypoplasia,
C. primary testicular failure,
D. bilateral absence of the vas.
E. panhypopituitarism.
Answer=D
The mean semen volume for normal men is 3 cc. The prostate and seminal vesicles provide more than 98% of the total volume of the ejaculate in man. Thus, very small ejaculates reflect either only prostatic fluid (with ejaculatory duct obstruction preventing seminal vesicle fluid from entering the ejaculate) or an abnormality in the physiology of these androgen-dependent organs. The seminal vesicles are responsible for the property of coagulation in the semen. Testicular failure does not affect semen volume. Men with congenital absence of the vas deferens rarely have significant volumes of seminal vesicle secretions in the ejaculate. This is a common cause of azoospermia. Vasal obstruction would not noticeably decrease the ejaculate volume. Men with retrograde ejaculation rarely have any antegrade ejaculate unless sperm are present in the antegrade semen.

52. A dorsal lumbotomy is most appropriate for children with:
A. failed pyeloplasty.
B. Wilms' tumor.
C. end-stage nephrosclerosis,
D. branched renal calculus,
E. mesoblastic nephroma.
Answer=C
A dorsal lumbotomy offers an excellent approach to deal with small, previously unoperated kidneys with benign disease. The kidney with end-stage nephrosclerosis provides an excellent candidate for posterior lumbotomy.

53. A three-year-old boy is anesthetized for a bilateral orchiopexy. Intra-operatively, his temperature is 104 degrees Fahrenheit, his heart rate is 130/minute, and he is noted to have dark venous blood. Arterial blood gas determinations include pH 7.10, p02 33, and base deficit 5.7 mEq/l. The first step in treatment is:
A. stop halothane, administer nitrous oxide, and give phenoxybenzamine.
B. hyperventilate with oxygen and give propranolol,
C. hyperventilate with oxygen and give dantrolene,
D. hyperventilate with oxygen and pack patient in ice.
E. stop halothane, administer nitrous oxide, and give atropine.
Answer=C
The patient has malignant hyperthermia It is caused by an inherited muscle membrane disorder that results in an abnormal influx of intracellular calcium. The result is a hypermetabolic state. It is frequently seen with the use of suxamethonium and/or volatile halogenated anesthetic agents. Treatment includes stopping the inhalational anesthetic, hyperventilate with oxygen and administer Dantrolene. This has resulted in a dramatic improvement in mortality from 70% in the 1970's to 5% today.

54. In patients with organic erectile dysfunction, the best response to sildenafil citrate is achieved in those with:
A. vascular disease.
B. history of radical prostatectomy.
C. diabetes mellitus.
D. history of TURP.
E. spinal cord injury.
Answer=E
Improved erections with sildenafil treatment were noted in 70% of men with organic erectile dysfunction (ED) and in over 80% of men with psychogenic ED. When the response is stratified by specific disease states; the best response rates are noted in the spinal cord injury group (83%). The response rates for the other groups range from 50-70%.

55. The function of the testicular germinal epithelium is best evaluated by measuring the serum level of:
A. LH.
B. hCG.
C. FSH.
D. testosterone.
E. dihydrotestosterone.
Answer=C
Although the role of FSH in spermatogenesis is somewhat controversial it is certainly safe to say that FSH levels are increased in proportion to the loss of testicular germ cells LH and testosterone concentrations generally remain within the normal range unless there has been extremely severe testicular failure.

56. Marked bilateral hydronephrosis first diagnosed antenatally is now confirmed with an ultrasound in a newborn female infant. A VCUG demonstrates no reflux and a normal urethra. The infant is voiding. The next step is:
A. IVP.
B. nuclear renal scan,
C. antegrade studies,
D. bilateral retrogrades,
E. repeat ultrasound in two months.
Answer=B
In this setting, one must determine if the hydronephrosis is causing significant obstruction and if so, at what level in the urinary tract The ultrasound may show ureteral dilation which suggests obstruction at the ureterovesical junction, but the renal scan will determine the degree of function and obstruction The ideal timing for performing this study is during the second month of life when the GFR has increased several fold. The IVP may be useful after the first week of life, but does not provide differential renal function. Antegrade studies are not needed at this point and should not be performed prior to the less invasive MAG-3 renal scan Bilateral retrogrades require an anesthetic and do not provide information on renal function or the degree of obstruction.

57. The bowel segment associated with the highest gastrointestinal potassium loss is:
A. transverse colon.
B. cecum.
C. ileum.
D. jejunum.
E. stomach.
Answer=B
It is important to know the electrolyte content of the fluid from the various bowel segments in order to replace abnormal fluid losses from these segments. The highest potassium gastrointestinal losses are from the cecum, followed by the stomach and ileum.

58. The primary role of the macrophage in organ or tissue rejection is:
A. production of interleukin-1.
B. production of gamma-interferon,
C. fcj stimulation of suppressor T cells.
D. release of cytotoxic antibodies.
E. release of macrophage-stimulating lymphokines.
Answer=A
Macrophages and other antigen-presenting cells are among the first inflammatory cells entering the allograft after transplantation. In addition to presentation of donor antigen; macrophage production of interleukin-1 (IL-1) is the primary stimulant for T lymphocyte IL-2 production, which leads to proliferation of activated T cells. The immunosuppressive effects of corticosteroids in organ transplantation are principally a result of suppression of macrophage IL-1 production. Gamma interferon is produced by T cells, and macrophages do not produce cytotoxic antibodies, stimulate suppressor cells, or release lymphokines.

59. A 50-year-old man has abrupt onset of hypertension (185/110 mm Hg). No abdominal bruit is heard on physical examination. The serum creatinine is 1.2 mg/dl and the serum potassium is 3.3mEg/l. The next step is:

A. ambulatory peripheral plasma renin activity.
B. aldosterone level.
C. captopril renogram.
D. renal vein renin measurements.
E. renal vein renin measurements before and after captopril.
Answer=C
The young age; acute onset of the hypertension and hypokalemia are all high-risk factors for renovascular hypertension (RVH) Based upon these risk factors, peripheral renin activity measurement is not necessary to pursue the diagnosis of RVH. An elevated aldosterone may be secondary to increasing levels of renin or primary hyperaldosteronism. The next step is a captopril renogram. If positive, renal vein renins +/- captopril are measured.

60. A 60-year-old woman develops vaginal leakage of urine and is found to have a ureterovaginal fistula five days after an abdominal hysterectomy. A retrograde ureterogram demonstrates the fistula 2-3 cm above the bladder. Attempts at retrograde and antegrade passage of a ureteral stent are unsuccessful. The most appropriate management is:
A. observation,
B. ureteroneocystostomy.
C. ureteroureterostomy,
D. percutaneous nephrostomy,
E. bladder flap ureterovesicoplasty.
Answer=B
In a healthy patient, fistula repair may be undertaken early. As all attempts at ureteral catheterization have been unsuccessful, the fistula will not likely heal with observation. Repair may be undertaken. The more distal ureter may be injured as well, and repair can be accomplished easily with ureteroneocystostomy. A bladder flap is not necessary given the very distal location of the fistula.

61. A 23-year-old woman suffers a complex pelvic fracture in a motor vehicle accident. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted and the patient is hemodynamicaily stable. Treatment should be:
A. urethral catheter drainage,
B. percutaneous suprapubic cystostomy.
C. open bladder repair.
D. suprapubic cystostomy and perivesical drainage,
E. repair of vaginal and bladder lacerations.
Answer=E
Urethral injuries in women are rare The urethra is short, mobile, and protected by the pubis in women Associated vaginal lacerations are common with urethral injuries. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. The vaginal injury should be closed, as well, to prevent a vesicovaginal fistula.

62. When performing radical prostatectomy, which best describes the location of the neurovascular bundles in relation to the urethra, prostate, and seminal vesicles:

	Uretha	Prostate	Seminal Vesicle
A.	posterior	lateral	lateral
B.	lateral	posterolateral	medial
C.	lateral	lateral	lateral
D.	posterior	posterolateral	medial
E.	lateral	posterolateral	lateral

Answer=E
The neurovascular bundles can be found lateral to the seminal vesicles, posterolateral to the prostate, and lateral to the urethra, and can be damaged in any of these areas by indiscriminate dissection.

63. A 60 kg, 40-year-old woman with recurrent calcium oxalate nephrolithiasis has normal serum calcium and phosphorus levels. Twenty-four-hour urine parameters are: Calcium: 350 mg, Creatinine: 1800 mg, Oxalate: 50 mg, Citrate: 1000 mg, Uric Acid: 800 mg
The next step is:
A. hydrochlorothiazide therapy,
B. allopurinol therapy,
C. pyridoxine therapy,
D. creatinine clearance,
E. recollect urine.
Answer=E
Urinary creatinine provides an assessment of the completeness of a urine collection. In women, it should be 14-21 mg/kg/day and, in men, it should be 20-27 mg/kg/day. This individual over-collected as her urinary creatinine excretion was 30 mg/kg/day. Repeating a urine collection would be the most appropriate step.

64. Bacteriuria associated with pregnancy is diagnosed most frequently:
A. in the first trimester,
B. in the second trimester,
C. in the third trimester,
D. immediately postpartum,
E. equally throughout pregnancy.
Answer=A
The prevalence of bacteriuria during pregnancy is approximately 5%, a prevalence similar to non-pregnant women. Bacteriuria in pregnant women correlates with age; sexual activity, parity and low socioeconomic status. It is most commonly diagnosed in the first trimester

65. In the hormonal treatment of disseminated prostate cancer, the drug with the most rapid onset of action in inhibiting testosterone production by the testis is:
A. leuprolide.
B. aminoglutethimide.
C. diethylstilbestroi.
D. ketoconazole.
E. flutamide.
Answer=D
Ketoconazole inhibits the enzyme 17:2Q desmolase; thereby preventing the conversion of cholesterol to testosterone. Ketoconazole acts rapidly. Castrate levels are reached after 48 hours of treatment with a dose of 400 mg every eight hours. None of the other agents used to lower serum testosterone (LH-RH agonists or DES) acts as rapidly.

66. A patient with bladder outlet obstruction secondary to BPH has an elevated serum creatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is Grade MIA/vesicoureteral reflux on a filling video CMG. The renal function abnormalities and ureteral changes are related to:
A. compression of the ureter at the ureterovesical junction.
B. the development of high-grade reflux.
C. increased urethral resistance.
D. high voiding pressure.
E. sustained high filling pressure.
Answer=E
Renal and ureteral impairment in BPH are related to high pressure chronic retention High voiding pressures if not sustained for long periods do not usually induce ureteral changes nor renal functional impairment While compression of the ureter at the U.V. junction might impair ureteral urine delivery to a degree, sustained bladder pressure elevations are required for the upper tract abnormalities described. Vesicoureteral reflux also results from the high pressures.

67. Transient urinary incontinence that occurs with an increase in intra-abdominal pressure in women under 50 years of age is most frequently associated with:
A. low resting urethral pressure,
B. dysfunction of the external striated sphincter,
C. urethral hypermobility.
D. a cystocele, rectocele, and uterine prolapse.
E. shortened urethral length and loss of the angle of urethral inclination.
Answer=C
While shortened urethral length and angle changes have been related to stress incontinence; these findings are less consistent than hypermobility Stress incontinence in younger women is not usually associated with low urethral pressures; and there is no relationship between genital prolapse or urethral prolapse and incontinence; external sphincter activity does not have a consistent relationship with stress urinary incontinence

68. The principal advantage of the conjoined ureteroileal anastomosis (Wallace technique) as compared to the standard Bricker technique of anastomosis is decreased:
A. operative time,
B. stone formation,
C. ureteral reflux,
D. pyelonephritis,
E. anastomotic stricture.
Answer=E
The principal advantage of the conjoined technique of ureteroileal anastomosis is the larger anastomosis to the ileum thereby decreasing the risk of ureteral anastomotic stenosis. This technique does not decrease operative time; stone formation, pyelonephritis, or reflux.

69. During exploration of a retroperitoneal hematoma from blunt renal trauma, the best anatomic landmark for the left renal artery is the:
A. superior mesenteric artery,
B. left renal vein,
C. right renal artery,
D. left gonadal vein,
E. left ureter.
Answer=B
The left renal artery originates from the aorta just lateral and superior to the left renal vein, identifying the left renal vein as it crosses the aorta provides the best anatomic landmark for the left renal artery.

70. A 45-year-old man has a large renal cell carcinoma. The SGOT, alkaline phosphatase, LDH, and alpha-2 -globulin levels are increased and the prothrombin time is prolonged. The liver is diffusely enlarged but there are no intrahepatic filling defects. The most likely explanation for these findings is:
A. hepatotoxic effect of the tumor,
B. liver metastases.
C. amyloidosis.
D. tumor thrombus obstructing hepatic vein,
E. acute hepatitis.
Answer=A
Abnormal liver function tests that appear to be reversible with tumor removal are found in up to 15% of patients who have renal cell carcinoma. This has been referred to as Stauffer's syndrome. These abnormal tests may recur with subsequent development of a metastasis again resolving with tumor resection. The mechanism is unknown although a toxic effect on liver cells is most likely. Amyloidosis develops in 2% to 3% of patients with renal cell carcinoma; and there is frequently renal involvement associated with the nephrotic syndrome. Hepatic amyloidosis is a possible cause of disordered liver function tests but is uncommon. Liver metastases are a late occurrence and unlikely in the absence of other secondary deposits. Hepatitis may be considered but this is usually diagnosed by other laboratory tests. Renal carcinoma rarely causes hepatic vein obstruction

71. The rapid intravenous infusion of a large dose of furosemide (Lasix) in an azotemic patient may result in:
A. auditory impairment.
B. hypomagnesemia.
C. hypoglycemia.
D. hypouricemia.
E. hypercalcemia.
Answer=A
A large dose of Lasix administered in the presence of impaired renal function or in association with aminoglycoside antibiotics is more likely to cause auditory impairment (which may be permanent) than if administered in the presence of normal renal function or in the absence of aminoglycosides. The other abnormalities listed would not occur acutely.

72. An infant has the prenatal diagnosis of a solid abdominal mass that spontaneously regresses on serial postnatal ultrasounds during the first year of life. The most likely diagnosis is:
A. mesoblastic nephroma.
B. Wilms' tumor,
C. neuroblastoma,
D. sacrococcygeal teratoma,
E. retroperitoneal yolk sac tumor.
Answer=C
Of the tumors listed: neuroblastoma is the only one that is frequently associated with spontaneous regression Autopsy studies show a much higher rate of incidental neuroblastoma than is seen clinically Because of the regression (or maturation to ganglioneuroma) some infants with neuroblastoma should not be treated. This is particularly true for those with Stage IV-Sr characterized by multiple sites of metastases, including bone marrow, liver and/or skin lesions.

73. The optimal dose of 30% iodinated contrast medium for an intraoperative IVP in a non-obese adult patient suspected of having renal trauma is:
A. .5 ml/kg.
B. 1.0 ml/kg.
C. 2.0 ml/kg.
D. 2.5 ml/kg.
E. 3.0 ml/kg.
Answer=C
Intraoperative IVP is performed in unstable trauma patients who can't undergo a radiographic evaluation in the emergency room. A film is taken ten minutes after contrast is administered intravenously. A 2 ml/kg dose of contrast medium is recommended for this study.

74. A 36-year-old woman has suffered from recurrent cystitis for several years. An IVP was normal two years ago. Now she is treated with trimethoprim-sulfa while a urine culture is pending. The culture demonstrates Proteus mirabilis, sensitive to ampicillin, but not to trimethoprim or sulfa. She is treated for eight days with ampicillin 250 mg q.i.d. Acatheterized urine culture obtained ten days after the ampicillin is discontinued again demonstrates Proteus mirabilias sensitive to ampicillin and cephalexin. The next step is:
A. restart ampicillin for 4-6 weeks.
B. restart ampicillin for 10 days.
C. begin cephalexin for 10 days.
D. obtain an IVP.
E. introital culture.
Answer=D
Refractory or relapsing urinary tract infection after reasonable antimicrobial therapy should make the physician suspect a complicated infection In a patient with a history of recurrent cystitis and relapsing urinary tract infection with Proteus mirabilis the physician should further suspect the possibility of infected calculi (i.e struvite calculi associated with urease producing bacteria such as Proteus sp) Upper urinary tract imaging, such as IVP, is indicated in this case

75. Which vessel is at greatest risk for injury during laparoscopic placement of an umbilical trocar:
A. right common iliac vein,
B. vena cava.
C. abdominal aorta,
D. right common iliac artery,
E. inferior mesenteric artery.
Answer=D
The right common iliac artery lies close to the midline at the inferior umbilicus. Therefore, with placement of an umbilical trocar, the right common iliac artery is most at risk for puncture injury

76. An 84-year-old woman with mild cognitive impairment has urge incontinence. She has a Grade I cystocele, residua! urine of 50 cc, and a normal urinalysis. Her incontinence should initially be treated by:
A. oxybutynin.
B. fluid restriction,
C. imipramine.
D. Kegel exercise,
E. prompted voiding.
Answer=E
Kegel exercise and fluid restriction alone have not been shown to be effective in the long-term treatment of urinary incontinence in the geriatric population The incidence and severity of side effects of the anticholinergic agents; especially imipramine; are significant in the geriatric population. Prompted time voiding; especially in those

patients who have responded to a trial of prompted voiding, is most often associated with decreased incontinence episodes in the elderly.

77. A 53-year-old man with a two year history of Peyronie's disease and erectile dysfunction non-responsive to oral medication undergoes color-flow Doppler ultrasound of the penis. After injection of 20 meg of prostaglandin E1, he develops a partial erection with significant curvature. Peak flow velocity is 10 cm/sec in the right corporal artery and 2 cm/sec in the left. The most appropriate management is:
A. plaque excision and dermal graft inlay.
B. Nesbit plication and pharmaco-injection therapy.
C. cavernosography.
D. pudenda! arteriography.
E. placement of a penile prosthesis.
Answer=E
In addition to Peyronie's disease; this patient has significant cavernosal arterial disease; normal cavernosal peak flow velocity should be > 25 cm/sec. Plaque excision will not improve his arterial inflow and will leave him impotent. A phalloplasty (penile straightening) procedure would be less morbid than plaque excision. Certainly, placement of a penile prothesis or use of a vacuum-constrictor device would be appropriate treatment options. Cavernosography is an attempt to demonstrate venous leak and would not be helpful given the patient's arterial inflow disorder.

78. Deletions of the short arm of chromosome 3 occur most frequently in association with:
A. papillary renal cell carcinoma.
B. angiomyolipoma.
C. renal medullary carcinoma.
D. oncocytoma.
E. clear cell renal cell carcinoma.
Answer=E
Deletions of the short arm of chromosome 3 are characteristic of clear cell carcinomas, which are seen in sporadic cases of renal cell carcinoma and those associated with von Hippel-Lindau disease.

79. A 25-year-old man with multiple sexual partners has a three-day history of purulent penile discharge. Gram negative intracellular diplococci are found on gram stain of a urethral swab. The best treatment is a single dose of:
A. penicillin G.
B. amoxicillin.
C. azithromycin
D. ciprofloxacin
E. ceftriaxone.
Answer=C
CDC recommendations for treatment of genitourinary gonorrhea include all of the above agents except penicillin. However, up to 30% or more of men with gonorrhea will have concomitant chlamydial infections, so presumptive treatment of chlamydia is required as part of the therapy of gonococcal infections. Of the antibiotics listed, only azithromycin will treat chlamydia adequately.

80. A 65-year-old man with lower urinary tract symptoms and an AUA Symptom Score of 18 is treated with terazosin. Six months later he develops hypertension. Which antihypertensive drug is contraindicated?
A. hydrochlorothiazide.
B. verapamil.
C. metoprolol.
D. losartan.
E. enalapril.
Answer=B
Concomitant use of terazosin and calcium channel blockers, especially verapamil is dangerous and can precipitate severe hypotension

81. A 76-year-old debilitated woman has had six episodes of asymptomatic bacteriuria treated with antimicrobial agents over the last year. The latest culture shows >100,000 E, coli cfu/mL The organism is sensitive only to ciprofloxacin and intravenous agents. Treatment with ciprofloxacin will most likely:
A. reduce mortality,
B. reduce morbidity,
C. increase morbidity,
D. improve performance status,
E. have no effect on health status.
Answer=E
Although several earlier studies suggest that a relationship might exist between bacteriuria and mortality in the aged; these observations have not been adequately substantiated even by some of the original investigators. A recent prospective cohort study combined with a controlled clinical trial of treatment of elderly women without urinary catheters demonstrated urinary tract colonization was not an independent risk factor for mortality and that treatment did not lower the mortality rate. Treatment potentially could increase morbidity by selecting for resistant organisms as well as adverse reactions to the drug including significant and serious allergic reactions.

82. A 43-year-old man with renal failure due to chronic glomerulonephritis has been on maintenance hemodialysis for two years. He voids approximately 500 cc of urine per day. He now complains of the sudden onset of severe right flank pain which is associated with microhematuria. The most likely explanation is:
A. renal vein thrombosis,
B. renal cell cancer,
C. subcapsular renal hemorrhage,
D. urolithiasis,
E. papillary necrosis.
Answer=D
Symptomatic urolithiasis occurs in 7% of the hemodialysis population with a male predominance of 3 to 1. These stones are usually composed of protein and calcium oxalate monohydrate. Approximately 2050% of dialysis patients have asymptomatic calculi diagnosed by ultrasonographic or routine radiographic studies. The other diagnoses listed are all much more unlikely than urolithiasis

83. A 55-year-old man with marked irritative and obstructive voiding symptoms has a large pelvic mass, Transrectal biopsy reveals a small cell carcinoma of the prostate. Initial treatment should be:
A. M-VAC chemotherapy.
B. LH-RH agonist,
C. cystoprostatectomy.
D. external beam radiotherapy.
E. VP16 and cis-platinum.
Answer=E
Small cell carcinoma of the prostate carries a very poor prognosis. In most patients, the course is rapidly fatal. These tumors do not respond to hormonal therapy or radiotherapy. There are reports of clinical remission following chemotherapy. Chemotherapeutic regimens similar to those used for pulmonary small cell carcinoma have been most effective.

84. A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:
A. renal vein thrombosis,
B. fungal urinary infection,
C. umbilical artery perforation,
D. renal papillary necrosis,
E. renal cortical necrosis.
Answer=B
Indwelling intravascular catheters and concomitant broad-spectrum antibiotics increase the likelihood of candidal infection, particularly in premature low birth weight infants. If hydronephrosis and fungus balls are present in the renal collecting system, percutaneous drainage and irrigation with Amphotericin-B may be needed. At times, fluconazole may be effective.

85. A 64-year-old woman has a Grade IV cystocele without urinary incontinence. To determine the need for concomitant bladder neck suspension with cystocele repair, she should undergo:
A. a pelvic MRI scan,

B. urethral pressure profilometry.
C. urodynamics with pessary,
D. cystoscopy.
E. uroflowmetry with postvoid residual.
Answer=C
Many women will develop de-novo stress incontinence after repair of a cystocele due to poor support of the urethra. Preoperatively, a urodynamic study should be performed with a pessary or vaginal pack in place to assess the competence of the bladder neck with proper bladder support. A filling study (CMG) to assess for detrusor instability, as well as Valsalva leak point pressure should be performed.

86. A 19-year-old man with mixed gonadal dysgenesis undergoes surgery for an undescended right testis. A 3 cm mass is found where the testicular vessels terminate inside the inguinal ring, along with an adjacent fallopian tube. The gonadal mass is most likely:
A. ovary.
B. gonadoblastoma.
C. streak gonad,
D. ovotestis.
E. seminoma.
Answer=E
Mixed gonadal dysgenesis (MGD) classically implies the presence of a normal testis with a contralateral streak gonad. The incidence of tumors in MGD is 25%, and the streak gonad should be removed when the syndrome is recognized Gonadoblastoma, which is derived from both the germinal and interstitial elements, is often found in patients with MGD. Nevertheless, seminoma is still much more common in this patient population.

87. A 60-year-old woman has undergone jejunal conduit diversion, in order to prevent the jejunal conduit syndrome, she will require long-term therapy with:
A. balanced citrate solution.
B. Shohi's solution
C. sodium chloride,
D. sodium bicarbonate,
E. potassium chloride.
Answer=C
Jejunal conduits lose salt and reabsorb potassium. Urinary salt concentration in these patients is lower than jejunal levels, resulting in a washout of NaCI through the jejunal mucosa with a subsequent decrease in extracellular fluid volume This reduces GFR, further decreasing the amount of sodium chloride excreted by the kidneys When hyponatremia and accompanying dehydration reduce GFR, the secretion of H is further diminished and metabolic acidosis ensues With acidosis, potassium is shifted from intra-to extracellular space resulting in hyperkalemia. There are two vicious cycles: salt loss and potassium absorption. Adding salt to the diet helps prevent the syndrome, in patients with abnormal renal function or who become dehydrated, overt hyponatremia, acidosis, and hyperkalemia will develop and will require I.V. normal saline until homeostasis is restored. The other replacement solutions are not appropriate.

88. The antibiotic associated with Achilles tendon rupture is:
A. ampicillin.
B. cephalexin.
C. nitrofurantoin.
D. trimethoprim-sulfamethoxazole.
E. ciprofloxacin.
Answer=E
Achilles and other tendon ruptures have been reported with ciprofloxacin and other quinolones.

89. A 38-year-old woman has severe right flank pain. She is afebrile and urinalysis demonstrates pyuria and microhematuria. A helical CT scan demonstrates right perinephric fluid and right hydroureteronephrosis down to a 3 mm distal ureteral stone. The best treatment is:
A. ureteral stent.
B. percutaneous nephrostomy drainage,
C. percutaneous drainage of perinephric fluid,
D. ureteroscopic stone removal,
E. analgesic therapy.
Answer=E
Forniceal extravasation is usually associated with a small distal ureteral calculus. These patients should be treated no differently than others with ureteral stones Intervention should be undertaken when there is an associated fever, nausea/vomiting, or unrelenting pain Otherwise, conservative observation is appropriate The AUA guidelines clearly state that a period of observation awaiting spontaneous passage is appropriate.

90. A 60-year-old woman develops pain, tenderness, and a palpable mass over the graft three days after undergoing renal transplantation. An IVP shows urinary extravasation limited to the distal aspect of the ureter; contrast enters the urinary bladder. She is clinically stable. The most appropriate initial treatment is:
A. percutaneous nephrostomy drainage,
B. repeat ureteroneocystostomy.
C. percutaneous drain placement,
D. retrograde ureteral stent placement,
E. ureteroureterostomy using the native ureter.
Answer=A
The incidence of ureteral fistulas has decreased as transplant surgeons have emphasized the importance of preserving the periureteral blood supply. Such fistulas are usually due to ureteral necrosis. In the present case, extravasation is limited to the distal ureter, and the situation could be corrected by excision of the necrotic portion of ureter and repeat ureteroneocystostomy. However, as the extravasation is limited and contrast does enter the bladder signifying absence of obstruction, percutaneous drainage of the kidney alone may be successful.

91. During surgical exploration for penetrating renal trauma, the first major branch of the left renal artery is transected. The renal segment most likely supplied by this branch is:
A. apical.
B. upper anterior,
C. middle anterior,
D. lower,
E. posterior.
Answer=E
The first branch of the left renal artery is a small ureteral branch, but the first major branch is the posterior or dorsal artery. This artery primarily supplies the posterior segment of the kidney alone, but occasionally may provide a small branch to the apical segment as well The anterior or ventral artery generally supplies branches to all but the posterior segment.

92. Which of the following is a polygenic disorder:
A. cystinuria.
B. Type I primary hyperoxaluria.
C. Type II primary hyperoxaluria,
D. idiopathic calcium oxalate nephrolithiasis.
E. adenine phosphoribosyl transferase deficiency.
Answer=D
Idiopathic calcium oxalate nephrolithiasis is thought to be a polygenic disorder, one influenced by several genes The other entities are monogenic, arising from an abnormality in a single gene

93. A recently married, 25-year-old man had a radical orchiectomy for embryonal cell carcinoma. There was lymphatic invasion in the rete testis, Serum markers, chest and abdominal CT scan are normal. His semen analysis shows a volume of 3 ml, 25 million sperm per ml, motility 60%, and 50% normal forms. The patient and his wife want the treatment that gives the best chance for fertility, as well as the best cancer control. He should be advised to undergo:
A. radiotherapy.
B. surveillance.
C. modified retroperitoneal lymphadenectomy.
D. bilateral retroperitoneal lymphadenectomy.
E. platinum-based combination chemotherapy.
Answer=C
The presence of lymphatic invasion in the rete testis predicts a high likelihood of retroperitoneal disease in this patient (approximately 50%). All of the therapeutic alternatives listed may have an adverse effect on fertility. Chemotherapy can result in a permanent adverse effect on fertility in approximately 30% of patients. With a modified

retroperitoneal lymph node dissection or nerve-sparing dissection, fertility is preserved in 80%-90% of patients. Even if he has retroperitoneal lymph node involvement, RPLND is curative in 50-60% of patients and chemotherapy can be avoided. The presence of both embryonal cell carcinoma and invasion of the rete testis places the patient at significant risk of metastatic disease. If he is observed and recurs, he will require chemotherapy which will have an adverse effect on his fertility Radiation therapy is not indicated in nonseminomatous tumors.

94. A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5, Serum electrolytes reveal Na 140mEq/l, K 3.4mEq/l, Cl 112mEq/l, and CO2 20mEq/l. The next step in her evaluation is:
A. serum aldosterone,
B. serum renin,
C. serum parathormone.
D. 24-hour urine citrate.
E. 24-hour urine potassium.
Answer=D
Renal tubular acidosis can be caused by a variety of disorders that interfere with the ability of the renal tubule to secrete hydrogen ion. There are two major types; type 1 classic or distal; and type 2, proximal. Type 1 or distal RTA occurs due to a defect in the distal nephron. The normal kidney can respond to various stimuli by excreting sufficient free hydrogen to produce a minimum urine pH of 4.0 to 4.4. Inability of the kidney to acidify the urine to a pH of less than 5.4 is a sign of distal RTA Most patients with this disorder have a urine pH greater than 6 Patients with distal RTA have a hypokalemic, hyperchloremic metabolic acidosis These patients are prone to urolithiasis and can develop nephrocalcinosis. Low urinary citrate in this setting is diagnostic

95. A 63-year-old man has a temperature of 102 degrees Fahrenheit and fecaluria eight days after radical perineal prostatectomy, A pelvic CT scan demonstrates a 5 by 4 cm heterogeneous peri-rectal fluid collection. He had received an oral bowel prep and antibiotics pre-operatively. The best management is parenteral antibiotics, percutaneous drainage of the fluid collection, and:
A. low-residue diet,
B. parenteral hyperalimentation,
C. suprapubic tube,
D. colostomy.
E. enteral hyperalimentation.
Answer=D
Rectal injury occurs in approximately 1.5% of patients undergoing radical perineal prostatectomy. If the injury is recognized intraoperatively and the patient has received an appropriate combination bowel prep; the injury can be repaired primarily. If the rectal injury is recognized post-operatively as a vesicorectal fistula, conservative management is not indicated, in this case, the patient also has associated infection and therefore a colostomy with delayed primary repair is indicated.

96. A 63-year-old man with a long history of urethral stricture disease has a large periurethral abscess. The abscess is drained and the surrounding tissues are debrided to the deep bulbar urethra. Pathology shows acute and chronic inflammation. He is continent but has a persistent urethrocutaneous fistula. After three weeks, there is minimal granulation tissue. The next step is:
A. flap inlay urethroplasty,
B. insertion of a Foley catheter,
C. myocutaneous flap for coverage,
D. whirlpool baths and wet-to-dry dressings,
E. suprapubic cystostomy and repeat biopsies.
Answer=E
In this patient with a non-healing abscess cavity and a long history of strictures, one must strongly consider the possibility of urethral carcinoma despite previous negative biopsies during an acute inflammatory phase. Thus, none of the other options should be done without a biopsy Urinary diversion is indicated in pyogenic involvement of the urethra

97. The von Hippel-Lindau tumor suppressor gene regulates the expression of:
A. basic fibroblastic growth factor,
B. epidermal growth factor receptor.
C. c-Met proto-oncogene,
D. vascular endothelial growth factor,
E. transforming growth factor beta.
Answer=D
The wild type VHL tumor suppressor gene product suppresses the expression of vascular endothelial growth factor (VEGF); a potent stimulator of angiogenesis. Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF; which contributes to the neovascularity associated with renal cell carcinoma.

98. A 24-year-old man with azoospermia and an ejaculate volume of 0.5 ml has a palpably normal left vas deferens, a nonpalpable right vas deferens, and a normal digital rectal examination. Both testes measure 30 ml. The most useful diagnostic study for infertility is:
A. transrectal ultrasonography,
B. serum testosterone,
C. post-ejaculatory urinalysis,
D. testicular biopsy,
E. seminal fructose.
Answer=A
The differential diagnosis for low ejaculate volume azoospermia is vasal agenesis, ejaculatory duct obstruction, and ejaculatory dysfunction. The presence of unilateral vasal agenesis upon physical examination of this patient strongly suggests the presence of a congenital anomaly with contralateral segmental vasal atresia. Transrectal ultrasonography will help differentiate between a potentially treatable ejaculatory duct obstruction and, more likely, absence or hypoplasia of the contralateral seminal vesicle and ampullary vas deferens. Patients with vasal agenesis do not require either a serum FSH or testicular biopsy unless they have testicular atrophy or another historical risk factor. Seminal fructose does not help differentiate between these two disorders, it is absent in both.

99. A 59-year-old woman undergoes renal exploration for a 2.5 cm lower pole cystic tumor on the surface of the left kidney. Intraoperative inspection reveals a second smaller tumor nearby which had not been seen on preoperative CT scan. Excisional biopsies reveal both tumors to be papillary renal cell carcinomas with negative surgical margins. The contralateral kidney is radiographically normal. The next step is:
A. no further therapy,
B. intraoperative renal ultrasound,
C. lower pole nephrectomy,
D. contralateral renal exploration,
E. nephrectomy.
Answer=E
Papillary renal cell carcinomas are commonly multifocal but regardless of histology the presence of multifocal tumors in one kidney is an indication for total nephrectomy if the opposite kidney is normal because of a higher risk of local recurrence in the affected kidney Intraoperative ultrasound might identify other unsuspected tumors but this would not change the recommended management. Cryosurgical ablation of renal tumors is investigational.

100. A 21-year-old man with sickle cell disease has an 18-hour history of a painful, persistent erection. The best initial management is:
A. oral terbutaline.
B. Winter shunt.
C. transfusion and alkalinization.
D. perinea! spongiosum-cavernosum shunt,
E. saphenous vein-cavernosum shunt.
Answer=C
The cause of priapism is an important issue in defining treatment. In patients with sickle cell anemia priapism should be initially treated with intravenous hydration, alkalinization, oxygenation, and transfusion If priapism persists > 24-48 hours then corporal aspiration and phenylephrine can be used. Shunt procedures should be reserved for failure of conservative measures.

101. Androgen ablation prior to radical prostatectomy results in:
A. improved postoperative potency,

B. improved urinary continence rates,
C. decreased positive surgical margins,
D. decreased risk of lymph node metastases.
E. increased time to disease progression.
Answer=C
The use of pre-operative androgen ablation in patients undergoing surgical treatment for localized prostate cancer can result in a decrease in surgical positive margins by 20-30%. Some studies now suggest that downsizing does not affect PSA recurrence rates beneficially.

102. A four-year-old girl is undergoing a left ureteral reimplantation for Grade III/V lower pole reflux. She has a duplex left kidney with a nonobstructed upper pole and normal caliber ureters. When the bladder is opened, a small left ureterocele is noted. The best management is:
A. excise the ureterocele, reimplant the lower pole ureter, and perform an upper pole partial nephrectomy.
B. excise the ureterocele and perform an upper pole partial nephrectomy.
C. excise the ureterocele and reimplant both the upper and lower pole ureters.
D. perform an ipsilateral ureteroureterostomy of the refluxing lower pole ureter into the upper pole ureter.
E. incise the ureterocele and close the bladder.
Answer=C
Although the small caliber upper pole ureter drains what appears to be a non-functioning renal segment, some urine is produced from the upper pole segment. Incising the ureterocele may result in reflux to that segment. A ureteroureterostomy into the ureter of the ureterocele may result in obstruction. Upper pole partial nephrectomy is not necessary, even if the function of the system is quite poor. A common sheath ureteral reimplantation after excision of the ureterocele is a safe one stage method of management.

103. A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass on CT scan. The mass measures negative 40 Hounsfield units. The next step is:
A. observation.
B. plasma catecholamines.
C. MIBG scan,
D. right adrenalectomy.
E. AM serum cortisol.
Answer=A
Amass with Hounsfield units between negative 30 and negative 140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required.

104. A six-month-old boy had a myelomeningocele which was closed at birth. He has had a documented febrile UTL Ultrasound shows bilateral moderate hydronephrosis, and VCUG shows no reflux. It is likely that:
A. spinal shock persists.
B. prophylactic antibiotics will prove definitive.
C. reflux has spontaneously resolved.
D. bladder augmentation will be necessary.
E. detrusor leak point pressure is greater than 40 cm H2O.
Answer=E
Hydronephrosis and infection in the six-month-old patient with myelodysplasia would imply a detrusor leak point pressure of greater than 40 cm H2O Although spontaneous resolution of reflux is observed; one would not anticipate hydronephrosis Usually EMG demonstrates continuous or increasing activity with filling Intermittent catheterization or vesicostomy should be considered rather than augmentation. Only 10% to 20% of patients with myelodysplasia will ultimately require augmentation. Antibiotics alone would not be adequate therapy.

105. A 27-year-old man being evaluated for infertility of nine months duration has a normal sperm count and motility but sperm morphology reveals only round headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate sized left unilateral varicocele. His wife is 25 years old and has a normal evaluation. The next step is:
A. varicocele repair,
B. intrauterine insemination,
C. re-evaluation in three months,
D. in vitro fertilization,
E. intracytoplasmic sperm injection.
Answer=E
Observation is a reasonable choice in young couples with infertility of less than one year's duration However, the finding of round headed sperm is consistent with absence of the acrosome and individuals with this finding are sterile Standard intrauterine inseminations and in vitro fertilization are unsuccessful because the sperm can not fertilize an egg without a normal acrosome. Varicocele repair will not improve the morphology. The only method that will induce a pregnancy using the patient s sperm is in vitro fertilization using intracytoplasmic sperm injection The alternative is donor insemination

106. A 24-year-old man has a pure seminoma found in a radical inguinal orchiectomy specimen. His preoperative serum AFP is normal, and beta-hCG is 10 MlU/ml (normal < 3 MlU/ml). Postoperatively, the serum hCG at one week is 2 MlU/ml. Physical examination is normal. Chest x-ray and abdominal CT studies are normal. The most appropriate treatment is:
A. retroperitoneal radiation therapy,
B. retroperitoneal lymphadenectomy.
C. retroperitoneal and mediastinal radiation therapy,
D. vinblastine, bleomycin, and cisplatin chemotherapy,
E. surveillance.
Answer=A
Serum hCG is mildly elevated in approximately 10% of patients with pure seminoma. It is important to review all of the pathologic specimen carefully for evidence of nonseminomatous germ cell testicular cancer; however, often only syncytial giant cells are found. Recent studies have shown that these cells stain positively for hCG using immunoperoxidase methods. In some cases, no such cells are found. Treatment for Stage A seminoma in this patient remains radiation therapy, with evidence showing no survival advantage to adding mediastinal therapy to abdominal radiation in patients with Stage I or Il-A disease. In addition, maximum bone marrow reserve is maintained so that possible future chemotherapy will not be compromised.

107. A 52-year-old man with sickle cell disease had a 30-year history of priapism occurring every two to three months. Most of the episodes necessitated hospitalization and responded to medical management. Three months ago, however, a cavernosal-spongiosum shunt was required. Since the surgery, he has had no episodes of priapism but must apply a rubber band to the base of the penis to obtain satisfactory erection. The most appropriate course of management is:
A. intracorporea! prostaglandin injections.
B. obsen/ation.
C. cavernosography.
D. insertion of penile prosthesis.
E. cavernosa! pressure studies.
Answer=D
The clinical history suggests erectile dysfunction due to patency of the cavernosal-spongiosum shunt However, since satisfactory erections can be obtained with the application of a constricting device at the base of the penis, and because closure of the shunts would lead probably to recurrence of the debilitating priapism, further investigation is not warranted.

108. Following a TURP, striated muscle is identified in the prostate chips. The patient will most likely experience:
A. incontinence,
B. impotence,
C. urinary extravasation,
D. excessive bleeding,
E. no complications.
Answer=D
Striated muscle can be demonstrated in the normal prostate gland. In fact, striated muscle can be found in the prostate chips following TURP in up to 30% of cases. This striated muscle is thought to be a reflection of pelvic floor striated muscle and is a normal finding. The presence of striated muscle in prostate chips does not increase the likelihood of the patient experiencing postoperative incontinence; impotence, excessive bleeding, or urinary extravasation Among

girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:

109. Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:
A. recurrent UTIs.
B. diurnal enuresis beyond age six years,
C. infrequent voiding,
D. age under nine months,
E. encopresis.
Answer=D
Genitourinary manifestations of sexual abuse in children are many and straddle injuries often can be confused with abuse A straddle injury under nine months of age is a "red flag" of abuse in that children of that age are not ambulatory.

110. Capacitation of spermatozoa:
A. occurs in the epididymis,
B. is activated by seminal plasma,
C. requires cervical mucus,
D. occurs in the female genital tract,
E. results in loss of tail structure.
Answer=D
Capacitation is a poorly characterized series of biochemical and cellular changes in spermatozoa which normally take place within the female reproductive tract. Capacitation is followed by characteristic changes in motility and the ability to fertilize the human ovum. Capacitation can occur in vitro through incubation of the sperm in special buffer materials. Seminal plasma inhibits capacitation

111. A 62-year-old man has persistent severe dysuria four months following kidney/pancreas transplantation drained via pancreaticoduodenocystostomy. Urine culture is negative. Cystoscopic examination reveals severe posterior urethritis. A retrograde urethrogram (RUG) reveals extravasation from the bulbar urethra. The most likely explanation is:
A. cytomegaloviral urethritis,
B. urethral stricture.
C. activated proteolytic exocrine enzymes,
D. urethral perforation from cystoscopy,
E. over-injection of contrast during RUG.
Answer=C
Dysuria syndrome is now a well-recognized urologic complication that follows combined kidney/pancreas transplantation drained via pancreaticoduodenocystostomy. The classic presentation is severe dysuria beginning several months after the transplant Often there is a history of urethral instrumentation Cystoscopic findings range from severe posterior urethritis to necrosis of the bulbar urethra, while a retrograde urethrogram will reveal extravasation from the bulbar urethra, in almost all cases. Depending on the severity, successful management will be accomplished with either temporary urethral catheter or suprapubic cystostomy drainage. In severe cases, it has been necessary to divert pancreatic exocrine drainage from the bladder to the intestine. The most likely cause is traumatic disruption of urethral mucosa (usually from temporary Foley catheterization) with subsequent inflammation due to activated proteolytic enzymes from the exocrine pancreas.

112. A 67-year-old woman with steroid dependent chronic obstructive pulmonary disease has multifocal CIS of the bladder. The best management is intravesical:
A. BCG.
B. thiotepa.
C. doxorubicin,
D. mitomycin C.
E. valrubicin.
Answer=D
Intravesical BCG is established as the best agent for intravesical therapy for CIS However, it is contraindicated in immunocompromised patients because of impaired efficacy and an increased risk of infectious complications. The next most effective agent is mitomycin C, which would be the best choice in this clinical circumstance Valrubicin is only indicated for BCG refractory CIS.

113. Multicystic renal dysplasia is most frequently associated with:
A. vesicoureteral reflux,
B. tuberous sclerosis,
C. ureteral atresia,
D. family history of cystic disease,
E. renal failure.
Answer=C
The typical features of a multicystic kidney are an atretic ureter lack of reniform outline, absence of the renal pelvis, noncommunicating cysts of varying sizes, and dysplastic parenchyma Prior to the advent of ultrasonography, the identification of an atretic ureter on retrograde pyelography was an important diagnostic finding

114. A five-year-old girl is treated for cystitis. She has urge incontinence four days per week and nocturnal enuresis. A VCUG shows no reflux. Physical examination is normal. The next step is:
A. DDAVP.
B. oxybutynin.
C. imipramine.
D. timed voiding
E. observation.
Answer=D
Enuresis is a common problem in five-year-old children Diurnal enuresis is present in 7-8%, and nocturnal enuresis in 15% Pharmacologic management may be considered, but the initial treatment should be timed voiding. This will improve the enuresis and decrease the risk for subsequent infection

115. During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is divided. The bowel segment likely to maintain normal blood supply is:
A. duodenum.
B. jejunum.
C. ileum.
D. cecum.
E. ascending colon.
Answer=A
The duodenum is supplied by the pancreaticoduodenal and the gastroduodenal arteries which arise from the celiac trunk All of the other bowel segments are supplied by branches of the superior mesenteric artery. Although ligation of the SMA may be well tolerated, assessment of bowel viability should be done. If feasible primary repair of the vessel should be undertaken.

116. A 68-year-old woman has recurrent ureteral clot obstruction of her solitary kidney that contains a large hypervascular tumor in the lower pole, comprising approximately one-third of the kidney. The other kidney had been removed five years ago for renal cell carcinoma. CT scan shows enlarged periaortic nodes and several small nodules in both lungs. Serum creatinine is 1.7 mg/dl when the kidney is not obstructed. The next step is:
A. partial nephrectomy,
B. radiotherapy to the renal tumor,
C. nephrectomy, then chronic dialysis,
D. intravenous epsilon aminocaproic acid,
E. selective embolization of arteries to the tumor.
Answer=E
Angioinfarction of renal tumors has been used both as a preoperative adjunct and as a palliative measure in patients with unresectable or metastatic tumors. A variety of agents have been used for embolization including absolute alcohol autologous blood clot, gelatin sponges (Gelfoam), and Gianturco steel coils. The kidney is an end organ and thus, angioinfarction may be accomplished at minimal risk to adjacent vascular beds. Most patients develop a post-infarction syndrome characterized by ileus, fever, flank or abdominal pain, and leukocytosis. Pyelonephritis should be eradicated before embolization. Partial nephrectomy could be a last resort if embolization should fail. Radiotherapy is unlikely to stop bleeding and will cause severe renal damage. Intravenous epsilon aminocaproic acid will only help temporarily, if at all, and may be dangerous because it may produce firm, persistent clots.

117. A 47-year-old man with bladder exstrophy and bilateral ureterosigmoidostomies had been lost to follow-up for 20 years. Current evaluation reveals that he is healthy, empties every 2.5 hours, and has nighttime incontinence. He has a serum

creatinine of 1.4 mg/dl with a mild hyperchloremic acidosis and has experienced two to three UTI's every year. An [VP shows prompt excretion with slight caliectasis bilaterally. The next step is:
A. barium enema.
B. spiral CT scan.
C. anal manometry.
D. sigmoidoscopy.
E. DMSA renal scan.
Answer=D
The most important issue for this patient is the risk of developing a colon cancer at the site of the ureteral-enteric anastomoses, which increases approximately 10% for each ten years after this form of diversion. This is best accomplished by sigmoidoscopy or colonoscopy, since radiographic studies might miss a small tumor. Since renal function has been relatively well-preserved and an IVP shows bilateral function, a renal scan is unlikely to add useful information. The occasional leakage is typical of patients with ureterosigmoidostomy and anal manometry is unlikely to help this situation. Mild hyperchloremic acidosis is also typical for this form of diversion and can be treated with oral replacement therapy without measurement of urinary electrolytes.

118. A 76-year-old man with diabetes develops a febrile UTI after TURP. Antibiotic therapy is administered and 48 hours later the urine culture is sterile. His clinical condition deteriorates and he has a temperature of 103 degrees Fahrenheit. He becomes comatose, hypotensive, and has a grand mal seizure. Laboratory studies show: serum osmolality 500mOsm/l; urine sugar 4+; and urine ketones negative. The most likely diagnosis is:
A. diabetic ketoacidosis,
B. brain abscess,
C. hyperosmolar coma,
D. gram-negative septicemia,
E. severe dehydration.
Answer=C
Increased insulin requirements are common during periods of physiological stress (i.e. infection. trauma; surgery, etc.). Nonketotic hyperglycemic coma (hyperosmolar coma) should be considered in those with: hyperglycemia > GOO mg/dl. Serum osmolarity >310mosm/kg, no acidosis, serum bicarbonate > 15 mg/I and no significant ketosis. The onset of disorder may be insidious as significant ketosis is absent Dehydration becomes profound Lethargy and confusion develop and may be followed by seizures. Treatment includes fluid and potassium replacement and insulin administration. Diabetic ketoacidosis should be considered in a comatose patient with the following features: hyperglycemia > 300 mg/dl, acidosis with a blood pH < 7.3, serum bicarbonate < 15 mg/l, and serum or urine positive for ketones.

119. A 70-year-old man undergoes transperineal brachytherapy with 1-125 seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18, Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 cc. There is no improvement with oral terazosin. The best management at this time is:
A. bicalutamide (Casodex).
B. tamsuiosin (Flomax).
C. clean intermittent catheterization,
D. finasteride {Proscar).
E. TURP.
Answer=C
Urinary retention after transperineal brachytherapy is common in men with significant pre-treatment obstructive symptoms and is best managed by intermittent catheterization 1-125 has a half-life of 60 days and TURP is contraindicated in the first nine months after treatment because of the risk of radioactive exposure to the surgeon, operating room personnel, and pathologists. Response rates to all alpha blockers are similar and switching to another agent of the same class is unlikely to help. Either oral bicalutamide or finasteride will take several months to shrink the prostate.

120. The primary advantage of electrovaporization over transurethral prostatectomy in a 70-year-old sexually active man with a 40gm benign prostate and a history of two myocardial infarctions is:
A. less dysuria.
B. shorter hospital stay,
C. decreased operative time,
D. less fluid absorption,
E. less retrograde ejaculation.
Answer=D
Relative to a TURP; electro vaporization is a longer surgical procedure which typically is associated with less bleeding, shorter hospital stay, and less fluid absorption. The most clinically relevant advantage of electro vaporization in the above case is the decrease in fluid absorption since the patient has a history of significant coronary artery disease and is likely to be at risk for developing congestive heart failure. The incidence of retrograde ejaculation is similar for both procedures. Following vaporization, patients typically experience more dysuria.

121. A 50-year-old woman has urinary frequency, occasional urge incontinence, and dyspareunia. She has a history of recurrent urinary infections. On physical examination, the bladder is not distended, but the urethra is tender to palpation. Which of the following would most reliably establish a definitive diagnosis?
A. IVP with postvoid film.
B. urethral calibration with residual urine assessment.
C. pelvic MRI scan.
D. cystoscopy.
E. urodynamics.
Answer=C
In this clinical setting, the most likely diagnosis is chronic urinary infection secondary to a urethral diverticulum Although many of these lesions can be demonstrated on a VCUG, pelvic MRI is being used with increasing frequency to confirm the diagnosis. Endoscopic examination under general anesthesia with good relaxation and simultaneous digital compression of the anterior vaginal wall may be necessary to satisfactorily demonstrate these lesions. In some cases, a retrograde urethrogram, utilizing the double balloon compression technique, is necessary to demonstrate the diverticulum. These lesions are seldom demonstrated by IVP studies. Quantitative urine cultures, although positive in these cases, do not establish the diagnosis. Urodynamics are not indicated in patients with suspected local urethral disease unless there is clinical evidence of co-existent neurogenic disease.

122. A 24-year-old man with chronic renal failure managed by hemodialysis desires evaluation and treatment for erectile dysfunction. He is scheduled to undergo renal transplantation from a living-related donor in approximately one month. The best management is:
A. serum testosterone and prolactin,
B. nocturnal penile tumescence study,
C. penile duplex ultrasound,
D. intracavernosal injection therapy,
E. re-evaluation after transplantation.
Answer=E
A significant number of patients with chronic renal failure who are on hemodialysis experience sexual dysfunction Following transplantation, a significant number of these men regain their pre-illness level of sexual function. In a report by Salvatierra, 64% of patients who had been transplanted less than three years, and 84% of patients transplanted for more than three years had regained their "pre-illness" level of sexual activity This patient is to undergo transplantation in one month The best management plan is to wait and re-evaluate him after transplantation if his sexual function does not return to acceptable levels.

123. Recipients with blood type O may receive a kidney from a donor with blood type:
A. AB.
B. B.
C. A1.
D. A2.
E. A3.
Answer=D
ABO blood type incompatibility is considered a contraindication to transplantation because of the risk of preformed antibody mediated hyperacute rejection The A2 subtype is a weaker antigen and does not induce agglutination when exposed to A1 reagents. A2 patients

express lower amounts of antigen and do not express other subtypes in the kidney With the use of plasmapheresis there are reports of successful transplantation of A2 donors with 0 recipients

124. A 35-year-old man returns for percutaneous nephrostomy tube removal five days after undergoing successful nephrostolithotomy. As the catheter is being removed, brisk bleeding is noted. The best management is:
A. compression of the nephrostomy site.
B. reinsertion of the nephrostomy tube.
C. surgical exploration.
D. angiography and embolization.
E. removal of the nephrostomy tube and observation.
Answer=B
Blood loss requiring transfusion occurs in 1% to 11% of patients undergoing percutaneous renal surgery Bleeding usually is a result of injury to the anterior or posterior segmental arteries. A transparenchymal posterolateral puncture minimizes the likelihood of vascular injury. Bleeding occurring during nephrostomy tract dilation should be controlled by passage of the next larger dilator. Persistent bleeding may be managed by stopping the procedure, placing and clamping the nephrostomy tube. When bleeding occurs when the nephrostomy tube is being removed, the nephrostomy tube should be reinserted to tamponade the bleeding vessel. When such measures fail, angiography and selective arterial embolization should be considered Usually an arteriovenous fistula or pseudoaneurysm is identified Persistent, gross hematuria occurring after nephrostomy tube removal may be managed similarly.

125. A 38-year-old woman with multiple sclerosis complains of urinary frequency, urgency, and urge incontinence. Urinalysis and culture are negative. Pelvic examination with a full bladder is normal. Residual urine one hour after voiding is 50 ml. The most likely diagnosis is:
A. detrusor hypocontractility.
B. detrusor hyperreflexia.
C. detrusor-external sphincter dyssynergia.
D. detrusor-internal sphincter dyssynergia.
E. poor bladder compliance.
Answer=B
In most series reporting urodynamic findings in patients with multiple sclerosis; detrusor hyperreflexia is seen in 50% to 90% of patients. Ultimately, striated sphincter dyssynergia develops in 30% to 60% of patients affected with multiple sclerosis. With a minimal residual urine, sphincter dyssynergia is unlikely, but should be ruled out when suspected by formal urodynamic studies

126. During an ilioinguinal node dissection for metastatic penile carcinoma, which muscle is best suited for transposition over the femoral vessels in order to prevent subsequent vascular injury:
A. gracilis,
B. pectineus.
C. sartorius.
D. rectus femoris.
E. vastus lateralis
Answer=C
The sartorius muscle extends from the anterior iliac spine to the medial aspect of the knee. The iliac extension may be separated from its attachment and sutured to the inguinal ligament, providing cover and protection of the femoral vessels. None of the other muscles are in an anatomic position to be useful for this purpose.
.
127. Which testosterone preparation is most likely to cause polycythemia or sleep apnea:
A. Androgel.
B. testosterone undecenoate.
C. And rode rm.
D. Testoderm.
E. testosterone enanthate.
Answer=E
Testosterone replacement therapy is safe in hypogonadal men except those with carcinoma of the breast or known or suspected prostate cancer Patients receiving testosterone therapy should be monitored with periodic DRE's, PSA, serum testosterone levels, and hematocrit. Polycythemia and sleep apnea can occur, especially with injectable testosterone therapy.

128. Indinavir sulfate (Crixivan) urinary stones:
A. are usually radiolucent.
B. occur in 55% of HIV positive patients.
C. fragment readily with lithotripsy.
D. are readily visualized on unenhanced CT scan.
E. require early urologic intervention.
Answer=A
Protease inhibitors (e g. indinavir sulfate) are poorly soluble in urine and cause urolithiasis in 12-20% of patients within one year Pure indinavir stones are radiolucent and; unlike uric acid stones, are not visualized on CT scans Most indinavir stones can be managed conservatively Their gelatinous nature explains the difficulty in treatment using lithotripsy techniques

129. Ultrasound of a 28-week-old fetus demonstrates normal kidneys and amniotic fluid. The bladder is not visualized on several ultrasounds. The most likely explanation is:
A. persistent cloaca,
B. bilateral ectopic ureters,
C. maternal dehydration,
D. bladder exstrophy,
E. patent urachus.
Answer=D
The bladder is visible in the fetus at 14 weeks gestation Nonvisualization of the bladder is seen in the fetus with poor renal function and oligohydramnios, cloacal exstrophy, bladder extrophy and persistent cloaca. The finding of normal kidneys and normal amniotic fluid excludes bladder agenesis and ectopic ureters. The bladder is visualized with a patent urachus. Prenatally diagnosed bladder exstrophy demonstrates an absent bladder, anterior abdominal mass and low-set umbilicus on ultrasound examination

130. A useful adjunct for treatment of Candida albicans cystitis is:
A. mannitol,
B. ascorbic acid.
C. Mandelamine.
D. acid ash diet,
E. sodium bicarbonate.
Answer=E
An adjunct in treating Candida albicans urinary infection is urinary alkalinization. Alkalinization above pH 6 8 has a significant inhibitory effect on the multiplication of Candida. Sodium bicarbonate given orally is very effective for promoting urine alkalinization. Mannitol, an osmotic diuretic, has no effect. Ascorbic acid, Mandelamine, and acid ash diet tend to acidify the

131. The most serious urodynamic finding in men with voiding symptoms secondary to multiple sclerosis is:
A. bladder capacity > 800 cc.
B. residual urine > 300 cc.
C. maximum flow rate < 15 cc/sec.
D. detrusor hypocontractility.
E. detrusor-striated sphincter dyssynergia.
Answer=E
Men with multiple sclerosis and detrusor-striated sphincter dyssynergia are at significant risk to develop upper urinary tract abnormalities Besides detrusor-striated sphincter dyssynergia in men, decreased compliance resulting in sustained intravesical pressures > 40 cm of water is also a significant risk factor. Although all of the other answers may be seen in men with voiding symptoms and multiple sclerosis, their presence is not as significant as the initial finding of detrusor-striated sphincter dyssynergia

132. A nine-year-old girl with adrenogenital syndrome is severely virilized, and her vagina enters the urogenital sinus immediately below the bladder neck. A cutback vaginoplasty is performed by incising the ventral wall of the urogenital sinus and distal vagina, and turning in a broad perineal skin flap to the apex of the vaginal incision. Postoperatively, she develops striking urinary incontinence which is most likely caused by:
A. vesicovaginal fistula,
B. disruption of the proximal urethra,
C. postoperative neurogenic bladder,
D. injury to the bladder neck,
E. reflux of urine into the vagina.
Answer=B

In patients with extensive virilization, the vagina may enter the urogenital sinus proximal to the urinary sphincter In this setting, a cutback vaginoplasty may disrupt the proximal urethra and urinary sphincter and cause incontinence The alternative is a pull -through vaginoplasty where the vagina is completely detached from the urogenital sinus, and the vaginal cuff is exteriorized onto the perineum

133. A 61 -year-man complains of new onset enuresis five years after cystectomy and orthotopic ileal neobladder. His daytime continence is good and the enuresis persists despite restricting fluids for several hours before retiring. The best management is:
A. Kegel exercises,
B. oral anticholinergics,
C. determine post-void residual,
D. augmentation of the neobladder,
E. artificial urinary sphincter.
Answer=C
The most likely cause of late onset incontinence following orthotopic ileal neobladder is mucous retention resulting in incomplete bladder emptying. Patients with this condition may still maintain good daytime continence by voluntary contraction of the external sphincter and frequent voiding; but at night pelvic floor relaxation decreased urethral closing pressure, and hypertonic urine production with an obligate water loss overcome these compensatory behaviors. This problem is best managed initially by catheterization of the pouch to determine post-void residual (PVR) volume and irrigation of mucous. If the PVR is high, then the problem can be solved by having the patient catheterize just before retiring to ensure the pouch is completely empty.

134. Which medication is associated with an increased incidence of renal insufficiency in patients with either bilateral renal artery stenosis or renal artery stenosis in a solitary kidney:
A. hydrochlorothiazide.
B. doxazosin.
C. propranolol.
D. captopril.
E. furosemide.
Answer=D
Captopril causes a pharmacologic blockade of the renin-angiotensin system. Glomerular-capillary hydraulic pressure is determined by the balance between afferent and efferent vascular tone. Efferent arteriolar constriction serves to maintain an effective filtration pressure and glomerular filtration rate when renal arterial perfusion pressure is reduced. In bilateral renal artery stenosis or in renal artery stenosis of a solitary kidney; settings in which total renal blood flow is fixed, failure to autoregulate filtration rate would lead to elevations of the BUN and creatinine Since evidence suggests that the renin-angiotensin system is responsible for this autoregulation, blockade by captopril would lead to transient renal insufficiency. None of the other drugs listed would produce this effect.

135. A 58-year-old woman complains of severe urinary incontinence with coughing or sneezing. Her abdominal leak point pressure is 30 cm H20 with urethra! hypermobility, and there is no evidence of detrusor instability on CMG. The best management is:
A. endoscopic needle suspension,
B. pubovaginal sling,
C. retropubic suspension,
D. artificial urinary sphincter,
E. periurethral collagen injection.
Answer=B
An abdominal leak point pressure below 65 cm of water indicates intrinsic sphincter deficiency. Endoscopic or retropubic suspension procedures are almost always doomed to failure. Injectable agents can improve urethral sphincter deficiency but do not address the urethral hypermobility. The best management is a pubovaginal sling. An artificial sphincter is no better than a sling yet is associated with greater morbidity

136. A two-month-old girl with a myelomeningocele closed at birth has a febrile urinary tract infection. Videourodynamics demonstrates Grade V/V bilateral reflux, a thick-walled bladder, and leakage around a 5 Fr. urethral catheter at 30 ml volume and a 50 cm H20 pressure. The next step is prophylactic antibiotics and:
A. vesicostomy.
B. enterocystoplasty.
C. cutaneous ureterostomy,
D. anticholinergics.
E. intermittent catheterization and anticholinergics.
Answer=A
This small volume, high pressure bladder may be even worse than urodynamics show, as the bladder volume and pressures are lowered by venting from vesicoureteral reflux. The upper tracts are at great risk. Vesicostomy provides immediate and complete freedom from high pressures with less subsequent reconstructive trouble than cutaneous pyelostomy. Augmentation of the bladder would be premature at this stage as it increases the complexity of care and starts a clock related to the known and unknown complications of enteric substitution. Even if eventually necessary, this could be safely delayed for several years Anticholinergics and intermittent catheterization are unlikely to help with this very poor lower tract

137. The renal structures best preserved in the presence of obstruction are the:
A. glomeruli,
B. proximal tubules,
C. loops of Henle.
D. distal tubules,
E. collecting tubules.
Answer=A
Glomerular changes are the last to occur with hydronephrosis With long term obstruction, other more distal components of the kidney are destroyed first.

138. A 22-year-old man develops severe hemorrhagic cystitis ten days following bone marrow transplantation for acute myelocytic leukemia. He had received cyclophosphamide prior to his transplantation. He requires numerous transfusions despite therapy with hydration, continuous bladder irrigation, and a single intravesical instillation of 3% formalin. The next step is:
A. bilateral percutaneous nephrostomy drainage,
B. intravesical irrigation with 1% aluminum potassium sulfate,
C. intravesical instillation of 1% silver nitrate,
D. hypogastric artery embolization.
E. administration of sodium 2-mercaptoethane sulfonate (Mesna).
Answer=A
Severe hemorrhagic cystitis, defined as requiring transfusion of more than six units to maintain hemodynamic stability and refractory to conservative measures, is life-threatening. Intravesical administration of silver nitrate or alum is unlikely to be effective following the failure of formalin. Hypogastric artery embolization has been utilized but complications including gluteal claudication and necrosis of the bladder have been reported. Mesna is only effective when administered at the time of cyclophosphamide therapy since it binds to the active metabolite. Bilateral percutaneous nephrostomy tubes divert urine, which has intrinsic fibrinolytic activity, away from the bladder and more aggressive intravesical therapy can then be applied.

139. A 48-year-o!d woman is noted to have abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:
A. serial creatinine measurements,
B. diuretic renogram.
C. cystoscopy and retrograde pyelogram.
D. antegrade pyelogram.
E. renal ultrasound.
Answer=B
Radionuclide bone scans may reveal delayed concentration of tracer in the kidney due to a generous collecting system or due to true obstruction This finding should be confirmed by a functional study such as an IVP or nuclear renogram; which should help determine whether or not this represents a functionally significant obstruction More invasive procedures are not indicated at this point

140. A 65-year-old man cannot void following an abdominoperineal resection for rectal cancer He is treated with

intermittent self-catheterization and is continent between catheterizations. Three months later he still cannot void and is re-evaluated. He has a normal creatinine and PSA. Cystoscopy reveals occlusive lateral prostatic lobes and a median lobe which projects onto the trigone. A combined CMG-EMG demonstrates a slight decrease in compliance, but no definite detrusor contraction is seen. His EMG never silences. Preferred management is:
A. continue intermittent self-catheterization.
B. TURP.
C. bethanechol.
D. TUIP.
E. tamsulosin.
Answer=A
Patients who have undergone an abdominoperineal resection are at risk for developing denervation of not only their bladder but also the urethral sphincter mechanisms Denervation of the smooth muscle in the area of the bladder neck and membranous urethra places these patients at considerable risk for incontinence following transurethral resection of the prostate. Because of the possibility of urinary incontinence, the preferred management of this patient is continued intermittent self-catheterization Transurethral resection of the prostate and transurethral incision of the prostate may make the patient incontinent. Bethanechol does not work in the doses that can be administered orally. Tamsulosin will not be effective in the absence of effective detrusor contractions.

141. A 30-year-old man has a nine-month history of an increasing testicular mass which is now 3 cm in diameter He undergoes a right radical orchiectomy which reveals an embryonal cell carcinoma with vascular invasion. There is no evidence of metastatic disease. Preoperative alpha-fetoprotein and beta-hCG are elevated. The best predictor of occult metastasis is:
A. size of tumor,
B. preoperative AFP.
C. vascular invasion,
D. preoperative hCG.
E. duration of symptoms.
Answer=C
Size of tumor, the time to presentation, and preoperative elevated serum markers are not the best indicators of subsequent metastases compared to embryonal cell carcinoma and vascular invasion. Of these two, vascular invasion is the best predictor.

142. A 21-year-old, C-5 quadriplegic man with detrusor-striated sphincter dyssynergia undergoes an external sphincterotomy. One year later, an IVP demonstrates a marked increase in hydronephrosis and a VCUG demonstrates no reflux. Detrusor leak point pressure is 60 cm H20 and the postvoid residual urine is 150 ml. Urine cultures reveal no growth. The most appropriate management is:
A. placement of a suprapubic catheter,
B. diazepam.
C. repeat sphincterotomy,
D. dantrolene sodium,
E. terazosin.
Answer=C
Despite having undergone an external sphincterotomy, this patient continues to have urinary retention and progressive hydronephrosis and an inadequate sphincterotomy is the most likely cause. The patient, therefore, should undergo a repeat sphincterotomy. Every attempt should be made not to place an indwelling catheter. Oral diazepam and dantrolene sodium are, in general not effective in improving bladder function in patients with detrusor-striated sphincter dyssynergia Terazosin is not likely to be helpful in this setting.

143. A 45-year-old man has progressive lower urinary tract symptoms. Physical examination of the prostate and PSA are normal. PSA is normal. Cystoscopically, the patient has minimal lateral lobe hypertrophy but marked elevation of the bladder neck and trigone. Both ureteral orifices are normal, and there is mild trabeculation of the bladder. Transrectal ultrasound shows a large midline cystic mass, aspiration of which reveals clear fluid without sperm. The most likely diagnosis is:
A. urachal cyst,
B. seminal vesicle cyst,
C. Mullerian duct cyst,
D. cystadenoma of the seminal vesicle,
E. Wolffian duct cyst.
Answer=C
A midline cystic structure in a younger man, above the prostate and not containing sperm, is most likely a Mullerian duct cyst. A urachal cyst would be superior. Seminal vesicle lesions would be lateral.

144. A 22-year-old man treated with bleomycin, etoposide, and cis-platinum for a Stage II mixed germ cell tumor of the testis has a residual abdominal mass. Preoperative pulmonary function testing discloses a mild reduction in forced vital capacity. The most important factor in minimizing the risk of post-operative pulmonary problems after RPLND is limitation of:
A. inspired oxygen concentration,
B. the extent of resection,
C. perioperative steroids,
D. intravenous fluids,
E. the length of the incision.
Answer=D
A recent retrospective study has challenged the classical teaching that oxygen exposure increases the likelihood of pulmonary toxicity in patients treated with bleomycin. In this study the factors associated with postoperative pulmonary problems were positive fluid balance; amount of blood transfused, surgical time, estimated blood loss, and forced vital capacity, while the fraction of inspired oxygen was not a predictor of adverse outcome. Avoiding overhydration was the most important factor in limiting pulmonary problems.

145. A seven-year-old 30 kg girl with myelodysplasia is wet between catheterizations. She takes oxybutynin 5mg three times per day. A VCUG shows a trabeculated bladder with Grade If I (V reflux bilaterally, CMG shows a bladder pressure of 80 cm H20 at a volume of 100 ml. The best management is:
A. urethral dilation.
B. bilateral ureteral reimplantation.
C. enterocystoplasty.
D. increase anticholinergic drugs.
E. repeat CMG with Fogarty catheter, to occlude ureters.
Answer=C
This patient is at risk to develop upper tract damage because of her poor bladder compliance and a relatively high urethral resistance. Intestinocystoplasty will increase bladder volume and improve bladder compliance. The patient is on the maximum dose of oxybutynin for her weight and an increased dose would not likely benefit the child. Urethral dilation could be used; but this is a temporary measure and used mostly in diaper dependent children. Bilateral reimplants alone would not be treating the primary pathology. A repeat CMG is not needed. In children with VUR, the CMG may be misleading if the capacity and compliance appear adequate due to the npop-off" of the refluxing urine. However, if the compliance is poor one can proceed

146. The normal course of the ureter in relation to the uterine artery is:
A. posterior
B. anterior.
C. medial.
D. lateral.
E. caudad.
Answer=A
The arterial supply to the uterus comes from the uterine artery which is a branch of the anterior trunk of the internal iliac
artery. This vessel is of surgical importance since it crosses the ureter 2 cm from the cervix and provides a small branch to the ureter.

147. A 33-year-old man has sharply marginated, dusky red patches on his inner thighs. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:
A. topical nystatin (Mycostatin).
B. topical tolnaftate (Tinactin).

C. oral fluconazole (Diflucan),
D. topical triamcinolone (Aristocort).
E. oral prednisone (Deltasone).
Answer=B
The clinical description is most consistent with a tinea cruris infection caused by a dermatophyte. Trichophyton rubrum, Trichophyton mentagrophytes and Epidermophyton floccosum are the most common causative organism. This condition is relatively common and should be easily recognized by urologists. Topical tolnaftate is specific treatment for this fungus. Topically applied nystatin is effective only in candidiasis. Orally administered fluconazole is not indicated. Steroid therapy should not be administered.

148. The worst prognosis in a child with Wilms' tumor is associated with;
A. lymph node metastases, favorable histology,
B. pulmonary metastases, favorable histology,
C. local tumor spill diffuse anaplasia,
D. microscopic residua! disease, clear cell sarcoma,
E. diffuse tumor spill, favorable histology.
Answer=C
The most important prognostic factors for Wilms1 tumor patients are histology and tumor stage. Of these two, histology is most important. Unfavorable histology patients account for 50% of tumor deaths although they represent only 10% of patients. Diffuse anaplasia and rhabdoid tumor have the worst survival. This is particularly true if the tumor extends outside the kidney since these tumors are resistant to standard Wilms1 tumor therapies. Survival in clear cell sarcoma has improved with the addition of doxorubicin to the chemotherapy regimen

149. In a patient with metabolic alkalosis, which clinical situation is associated with low urinary chloride excretion:
A. primary hyperaldosteronism.
B. Cushing's syndrome.
C. Bartter’s syndrome,
D. diuretic abuse.
E. prolonged nasogastric suction.
Answer=E
Only in prolonged nasogastric suction would chloride loss decrease urinary chloride excretion. In Barker's syndrome and diuretic abuse urinary chloride would be excessive because of increased delivery of chloride to the distal nephron In mineralocorticoid excess, alkalosis is maintained by continuous generation of bicarbonate by the distal nephron and no chloride depletion occurs

150. A15-year-old sexually active boy has a painless mass in the head of the left epididymis. He is placed on doxycycline. Six weeks later, the mass has not changed and a ultrasound shows a 1,5 cm echogenic mass in the head of the left epididymis. The next step is:
A. repeat course of doxycycline.
B. urine culture for chlamydia,
C. serial cultures for AFB.
D. biopsy of mass,
E. epididymectomy.
Answer=C
Tuberculous epididymis is the most common form of urogenital T8 and should be considered when evaluating scrotal masses. This form of epididymitis is more likely to be considered a possible malignancy since it is painless and not of an acute nature. In most pediatric cases, there are other hematogenous areas of involvement and the urine culture may or may not be positive for AFB. Therefore, tuberculous epididymitis may be the first and only presenting symptom of genitourinary tuberculosis in cases where the IVP is normal and M. tuberculosis cannot be isolated. The diagnosis is made by culture of M. tuberculosis from a discharging sinus or after epididymectomy.

aua 2003

1. Following the initial interval of spinal shock, a quadriplegic who has difficulty with bladder emptying will most likely benefit from an alpha-adrenergic blocking agent when which of the following conditions develops:

A. detrusor-sphincter dyssynergia.
B. anal sphincter hyperreflexia.
C. detrusor hyperreflexia.
D. autonomic dysreflexia,
E. vesical areflexia.
ANSWER=D
Patients with autonomic dysreflexia are more likely to have inappropriate contraction of the bladder neck during voiding. This may respond to alpha-adrenergic blocking agents designed to relax bladder neck and prostatic smooth muscle. Although externa! sphincter dyssynergia and hyperflexia may also be present in such a patient and could respond to alpha-blocker therapy based on a central drug action; these are not as compelling reasons for treatment.

2. The beneficial effect of thiazides in preventing recurrent calcium stones is most directly enhanced by restriction of dietary:

A. sodium.
B. potassium.
C. magnesium.
D. protein.
E. carbohydrates.
ANSWER=A
Thiazide agents stimulate calcium reabsorption in the distal nephron. They also induce volume depletion which stimulates proximal tubular calcium and sodium reabsorption. The hypocalciuric action of thiazides is attenuated by sodium consumption

3. The best predictor of immediate graft function following living donor renal transplantation is:

A. warm ischemia time,
B. cold ischemia time,
C. renal revascularization time,
D. total ischemia time.
E. donor kidney urine output just prior to nephrectomy.
ANSWER=E
While both cold and warm ischemic times have important roles in determining immediate function for cadaver renal transplant recipients, these times are negligible in living donor transplantation and rarely affect immediate graft function. The single best determinant of immediate function in live donor transplantation is the functional status of the kidney at the moment it is removed from the donor

4. Ileal conduit stomal bleeding, incrustation, and plaque formation are usually due to:

A. allergy to appliance material.
B. Candida albicans infection,
C. chronic exposure to alkaline urine,
D. chronic exposure to acid urine.
E. E coli infection.
ANSWER=C
Stomal bleeding, incrustation, plaque formation, and the formation of granulation tissue are complications in urinary conduit stomas. These complications are almost always secondary to alkaline urine exposure and poor hygiene of the collection device. Alkaline urine is often due to untreated urinary infection from urea splitting organisms or contamination of such organisms within the collecting device itself. Management includes treatment of urinary tract infection, urinary acidification, cutaneous soaks with weak acidic solution, treatment of the collecting device with acid solutions to rid contamination from urea splitting organisms, better fitting of the permanent appliance device, or a bedside collecting device to prevent bathing of the stoma in urine.

5. Persistent hypercalcemia that develops as a consequence of long-standing thiazide treatment may be indicative of:

A. hyperparathyroidism,
B. renal tubular acidosis,
C. medullary sponge kidneys,
D. hypervitaminosis D.
E. Fanconi syndrome.
ANSWER=A
Thiazides induce contraction of the extracellular fluid volume This contraction results in hemoconcentration and, thereby, elevation of blood constituents including calcium. Hemoconcentration disappears in time (days to a few weeks) and transiently elevated blood chemistries revert to normal. A sustained elevation of serum calcium that occurs in the presence of a normal serum protein concentration suggests that the ionized calcium is elevated Abnormally high ionic calcium is usually the result of hyperparathyroidism. Indeed, thiazides may be administered as a provocative test in the evaluation of patients with suspected normocalcemic hyperparathyroidism.

6. A 72-year-old woman has a history of superficial transitional cell carcinoma of the bladder. An IVP shows a normal right kidney and collecting system, but a poorly functioning left kidney. Urine cytology is positive. Cystoscopy is normal. A left retrograde pyelogram is shown (see figure). Her serum creatinine is 1.5 mg/dl. The best management is:

A. ureteral stent and intravesical BCG.
B. BCG via percutaneous nephrostomy,
C. ureteroscopy and laser ablation,
D. ureterectomy and ileal ureter,
E. nephroureterectomy.

ANSWER=E
The history, clinical findings, and retrograde are most consistent with transitional cell carcinoma of the left ureter. When focal and noninvasive such tumors may be amenable to endoscopic manipulation with or without BCG, but the number of tumors visible on this retrograde make endoscopic management or treatment with BCG alone not practicable. Ureterectomy and ileal replacement might be an option in someone with a solitary kidney or impaired renal function, but in view of the normal creatinine, radiographically normal opposite kidney, and poor function of the left kidney, nephroureterectomy is the treatment of choice.

7. A 55-year-old man has a 16 Fr urethral catheter that cannot be removed because the balloon will not deflate. The best way to deflate it is to:

A. inject ether into the inflation port.
B. pass a guidewire down the inflation port.
C. puncture the balloon percutaneously with ultrasound guidance.
D. inject water into the inflation port until the balloon bursts.
E. pass a resectoscope sheath over the cut-off catheter to guide cystoscopic scissors.
ANSWER=B
A stiff guidewire passed down the inflation port will almost always clear the passage and let the water out without breaking the balloon. The other choices depend on breaking the balloon, often leaving a floating fragment that cannot be voided or irrigated out. Cystoscopy is then required to retrieve the fragment that, if left behind, will calcify and lead to infection. Ether cystitis could cause bladder wall damage and irreversible bladder contracture.

8. Which of these stone compositions is most resistant to fragmentation with SWL therapy:

A. calcium oxalate monohydrate.
B. calcium oxalate dihydrate.
C. hydroxyapatite.
D. uric acid.
E. struvite.

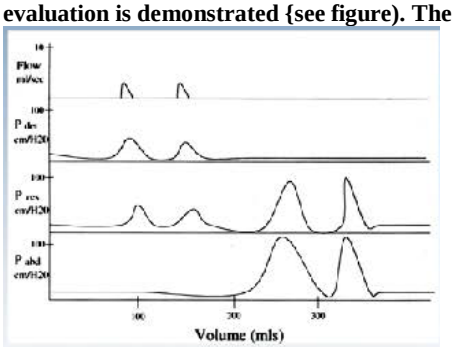
ANSWER=A
The fragility of stones determines their ability to be fractured with therapies such as SWL. The fragility of a stone will affect the outcome of therapy. Calcium oxalate monohydrate, brushite and cystine stones have been shown to be the least fragile and are less likely to respond to therapy with SWL.

9. A 62-year-old man with a long history of obstructive voiding symptoms has urine leakage from the perineum. A retrograde urethrogram demonstrates a 1.5 cm stricture of the bulbous urethra. The next step is:
A. direct vision urethrotomy,
B. suprapubic cystotomy,
C. biopsy of urethra.
D. excision and end-to-end anastomosis,
E. first-stage urethroplasty.
ANSWER=C
Carcinoma of the urethra should be suspected in those men who present with obstructive symptoms, a urethrocutaneous fistula and have a urethrogram with the findings as described above. Biopsy to exclude urethral carcinoma should be performed before attempts at repair are undertaken.

10. A 65-year-old man undergoes an abdominal-perineal resection for adenocarcinoma the rectum. Postoperatively, he has a poor urinary stream, incomplete emptying, and urinary retention. A CMG confirms detrusor areflexia. The cause for these symptoms is damage to the:
A. post-ganglionic parasympathetic nerves.
B. post-ganglionic sympathetic nerves,
C. pre-ganglionic sympathetic nerves,
D. pudendal nerves,
E. pelvic nerves.
ANSWER=E
The pelvic nerves are in close proximity to the rectum; and it is virtually impossible to remove the rectum without affecting the integrity of these structures. Thus, the parasympathetic motor supply to the detrusor is impaired at least temporarily. Although the post-ganglionic hypogastric plexus may be damaged, this should not affect detrusor contractility. The parasympathetic post -ganglionic nerves are in the waff of the bladder and will not be damaged by rectal surgery.

11. The metabolic abnormalities most frequently encountered in patients with cystic fibrosis who develop nephrolithiasis are:
A. hypercalciuria and hypocitraturia.
B. hypercaiciuria and hyperuricosuria.
C. hyperoxaluria and hypocitraturia.
D. hyperoxaluria and hyperuricosuria.
E. hyperuricosuria and hypocitraturia.
ANSWER=C
Patients with cystic fibrosis are at risk for developing nephrolithiasis The metabolic defects most commonly encountered in this patient population are hypocitraturia and hyperoxaluria, due to increased gastrointestinal oxalate absorption and rapid intestinal transport. Several measures can be taken to attenuate stone activity including increased fluid intake, administration of pancreatic enzymes, a low fat and low oxalate diet, and potassium and calcium citrate therapy.

12. A 35-year-old woman with T8 paraplegia underwent augmentation ileocystoplasty for urinary incontinence unresponsive to clean intermittent catheterization and anticholinergics. Post-operatively, she develops recurrent incontinence unresponsive to anticholinergics. Her urodynamic evaluation is demonstrated {see figure). The next step is:



A. ileovesicostomy.
B. continent catheterizable urinary diversion,
C. insert additional bowel patch into cystoplasty.
D. pubovaginal sling.
E. bladder neck closure and appendicovesicostomy.
ANSWER=C
This patient suffers from post-augmentation cystoplasty incontinence because of intermittent involuntary contractions of the augmented bladder as seen in the urodynamic study. This can occur despite adequate detubularization of the bowel or from inadequate bivalving of the bladder. When anticholinergics fail the best treatment is inserting an additional patch of bowel into the cystoplasty There is no evidence of urethral insufficiency on the urodynamic study as there is no leakage with Valsalva maneuvers Therefore, procedures to either augment urethral resistance or close the urethra are not indicated There is no dication to perform a supravesical urinary diversion since the lower urinary tract is still useful and can be further reconstructed

13. A 68-year-old man has fever, chills, and left flank pain. Two years previously, he underwent radical cystectomy and ileal conduit diversion for Stage T3b transitional cell bladder cancer. Abdominal CT scan reveals left hydronephrosis, a normal right kidney, and a retroperitoneal mass surrounding the left ureter. The next step is I.V. antibiotics and:
A. observation.
B. left nephrectomy.
C. left percutaneous nephrostomy.
D. percutaneous biopsy of retroperitoneal mass.
E. retrograde insertion of left ureteral stent.
ANSWER=C
This patient is acutely ill with fever and an obstructed left kidney. The original tumor stage and current CT findings make obstruction of the left kidney by metastatic disease likely. The immediate need is for antibiotics and relief of renal obstruction. This is best accomplished by percutaneous nephrostomy.

14. A 56-year-old man with a solitary kidney and hypertension undergoes SWL for a 2 cm renal pelvic calculus. Immediately after the procedure, he has a blood pressure of 90/60 mm Hg, gross hematuria, and flank pain. ACT scan reveals a 10 x 12 cm perirenal hematoma. His blood pressure stabilizes with fluid resuscitation and two units of packed RBC's. The next step is:
A. continue supportive therapy,
B. ureteral stent placement,
C. arteriography.
D. percutaneous drainage of the hematoma,
E. renal exploration.
ANSWER=A
The likelihood of significant bleeding after SWL is approximately 1%, although perirenal hemorrhage may be noted in up to 25% of patients if CT or MRI is performed routinely after these procedures. Risk factors for bleeding include coagulopathy; bleeding dyscrasias; hypertension and concurrent treatment with medications that alter platelet function such as an NSAIDS (ibuprofen.ketorolac etc.). Intervention is rarely required. Most hematomas will resolve and either new onset hypertension or exacerbation of existing hypertension is unlikely. Renal function is also unlikley to be negatively influenced by the hematoma

15. A 62-year-old man underwent an Ileal conduit using a loop (Turnbull) stoma. He has abdominal discomfort and a recurrent large parastomal hernia after two failed repairs. The most appropriate treatment is:
A. conversion to colon conduit.
B. application of abdominal binder.
C. closure of the fascial defect with synthetic mesh graft.
D. transposition of stoma to opposite side of abdomen.
E. conversion to standard end-on stoma.
ANSWER=D
Parastomal hernias occur more commonly with loop than end-on stomas. The most effective method of such hernia management is by relocation of the stomal site to the other side of the abdominal wall and by closure of the hernia.

16. A 28-year-old man with an ileal conduit for 20 years is scheduled for a renal transplant. He had posterior urethral valves treated as an infant. A CMG shows a 75 cc capacity

bladder with uninhibited contractions, and his maximum voiding pressure is 50 cm H20. After five days of bladder cycling, his bladder capacity increases to 200 cc. The best management is:
A. transplant into the existing ileal conduit,
B. bladder augmentation before transplant,
C. transplant into native bladder,
D. neobladder construction before transplant.
E. Indiana pouch construction before transplant.
ANSWER=C
Transplantation into a pre-existing urinary diversion is necessary when the bladder is absent, the recipient is totally incontinent and cannot undergo repair or irreparable bladder damage has occurred. Selected patients may undergo successful undiversion at transplantation even after many years of urinary diversion These patients should have a careful review of old medical records and a review of voiding habits before diversion. They should undergo urodynamics, voiding cystourethrography and cystoscopy. In the absence of significant fibrosis, long term defunctionalized bladders should improve with restoration of urine flow. This may be assessed after 3-5 days of continuous bladder irrigation by suprapubic tube or intermittent catheterization. This should demonstrate a bladder capacity > 10Gcc and voiding pressure < 100 cm. water.

17. A 42-year-old woman with poorly controlled diabetes has a residual urine of 200 cc. She has had one episode of cystitis and currently has no voiding symptoms. The best way to prevent recurrent bacterial urinary tract infections is:
A. tight control of diabetes,
B. clean intermittent catheterization,
C. oral estrogens.
D. avoid bladder instrumentation,
E. suppressive antibiotic therapy.
ANSWER=D
There have been no studies to show that glucose in the urine predisposes to bacterial urinary infections However glucosuria may increase the colony count or lead to fungal infections. Similarly, any benefit from reducing the residual urine by intermittent catheterization is more than offset by the risk of colonization of the bladder. Using prophylactic antibiotics may not be warranted if the patient is otherwise normal and has an occasional UTI Most important is to avoid instrumentation which may induce infections in individuals with small residual urines. Estrogens may help reduce UTIs in elderly women with atrophic vaginitis by reducing vaginal pH in the post-menopausal state

18. A newborn boy has not voided for the first 18 hours of life. A renal ultrasound is obtained (see figure). The next step is:
A. observation.
B. VCUG.
C. MAG-3 renal scan
D. urethral catheter,
E. serum creatinine.

ANSWER=A
The ultrasound demonstrates sonolucent renal pyramids which are a normal finding in infants This is frequently mistaken for caliectasis. It is not uncommon for infants to have delayed voiding even beyond 24 hours. Simple observation of this child is all that is needed.

19. The neurological condition associated with urinary incontinence and an open bladder neck is:
A. sacral agenesis,
B. cervical spinal cord injury.
C. Parkinson's disease,
D. neurosyphiiis.
E. herniated L4-L5 disk.
ANSWER=A
Intrinsic sphincter deficiency with an open bladder neck can be caused by sacral cord neuropathy such as sacral agenesis or bilateral pelvic plexus injury. Parkinson's disease can cause detrusor hyperreflexia but not an open bladder neck. Neurosyphilis can cause a sensory neurogenic bladder and may be associated with overflow incontinence Pang D: Sacral agenesis and cauda spinal cord malformations.

20. A 40-year-old woman has a large staghorn stone (surface area 3500 mm2) in her right kidney. The collecting system is grossly dilated with infundibular stenoses. Nuclear renography demonstrates that this kidney provides 30% of global renal function. Serum creatinine is 1.2 mg/dl. The best treatment is:
A. serial SWL with ureteral stent.
B. percutaneous nephrolithotomy.
C. percutaneous nephrolithotomy combined with SWL
D. anatrophic nephrolithotomy.
E. nephrectomy.
ANSWER=D
This individual has an extremely large staghorn stone. Shockwave lithotripsy monotherapy would not be appropriate as it would be virtually impossible to render this patient stone free. When stone surface area is greater than 2;500 mm2, stone free rates with percutaneous based therapy are reported to be approximately 50%. The complex collecting system anatomy in this case would also be a hindrance with this approach Nephrectomy should not be considered as the patient is young and the involved kidney has reasonable function Anatrophic nephrolithotomy is the most appropriate treatment in this setting Lam HS, Lingeman JE; Barron M, et al: Staghorn calculi: Analysis of treatment results between initial percutaneous nephrostolithotomy and extracorporeal shockwave lithotripsy monotherapy with reference to surface area.

21. The optimal high volume, low pressure continent urinary reservoir is created by:
A. approximating a spherical configuration,
B. employing small intestine,
C. combination of small and large intestine,
D. an orthotopic location of reservoir,
E. disruption of peristaltic contractions.
ANSWER=A
The success of a continent reservoir depends primarily on its ability to store considerable volume of urine at low pressure. The most effective manner of attaining this goal is through the maximization of reservoir volume for a given surface area. This is best accomplished by using a spherical configuration.

22. Treatment of neurogenic bladder dysfunction with prevention of upper urinary tract damage is best determined by:
A. Valsalva leak point pressure,
B. detrusor leak point pressure.
C. EMG activity during detrusor contraction,
D. detrusor pressure at maximum flow.
E. VCUG.
ANSWER=B
Assessment of bladder compliance is critical in the management of patients with neurogenic vesicourethral dysfunction This is best accomplished by measurement of the detrusor leak point pressure. This parameter primarily assesses detrusor compliance however is partially related to outlet resistance. When it exceeds 40 cm H20, upper urinary tract damage is probable. Valsalva leak point pressure and maximum urethral pressure are used to assess the urethra's ability to withstand increases in intraabdominal pressure, particularly in patients suspected of stress urinary incontinence. Detrusor pressure at maximum flow is the significant parameter measured in patients undergoing pressure-flow urodynamics for the evaluation of bladder outlet obstruction. Although increased EMG activity during bladder contraction may indicate evidence of detrusor external sphincter dyssynergia, this does not necessarily imply the presence of detrusor storage pressures predictive for upper urinary tract deterioration

23. A 24-year-old man has recurrent cystine nephrolithiasis. Urine volume is more than three liters per day. He is taking alpha-mercaptoproprionylglycine (Thiola) and potassium citrate tablets three times per day with no side effects. He notes

that his stools are filled with tablet-like material. The best recommendation is:
A. reassurance.
B. take the tablets before meals,
C. evaluate for malabsorption,
D. change Thiola to D-penicillamine.
E. change potassium citrate formulation.
ANSWER=A
Potassium citrate comes in a variety of formulations. Potassium citrate tablets are produced with a wax matrix to optimize their sustained release. It is not infrequent for these wax matrix tablet casts to be visualized in stools. This is most frequently seen in individuals with ileostomies Patients should be reassured that the medicine is being delivered To insure that the citrate is being absorbed, it would be appropriate to check the urine pH If the urine is acidic, it may be necessary to increase the potassium citrate dose.

24. A 29-year-old man with infertility is azoospermia. He underwent right orchiectomy three years earlier for trauma. A review of the pathology from that procedure shows normal spermatogenesis. A left vasogram is shown (see figure). The most likely diagnosis is:
A. Sertoli-cell-only syndrome.
B. Klinefelter syndrome,
C. obstruction of the ejaculatory duct,
D. obstruction of the vas deferens,
E. epididymal obstruction.

ANSWER=E
Sertoli-cell-only and Klinefelter syndromes are bilateral and thus ruled out by the history of a normal contralateral testis biopsy Vasographic findings rule out obstruction of the vas and ejaculatory duct. Congenital absence of the epididymis or incomplete fusion of epididymis and vas deferens are thus the cause of azoospermia in this setting.

25. In central (pituitary) diabetes insipidus, the nephron segment that contains the most dilute fluid is the:
A. proximal convoluted tubule,
B. descending limb of Henle's loop,
C. ascending limb of Henle's loop,
D. distal convoluted tubule,
E. collecting duct.
ANSWER=E
Central diabetes insipidus involves a defect in the production or release of antidiuretic hormone from the hypothalamoneurohypophyseal system. Antidiuretic hormone affects the permeability of the distal tubule and collecting duct to water from the filtrate With diminished antidiuretic hormone production the distal tubule and collecting duct reabsorb less water from the filtrate yielding concentrated blood and dilute urine. The most dilute urine will be in the collecting duct.

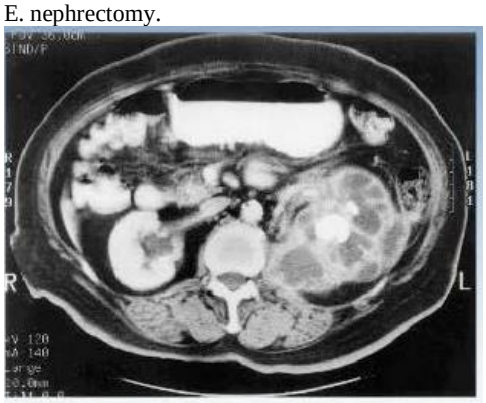
26. A 24-year-old man sustains a rifle shot to the abdomen. Exploratory laparotomy reveals multiple small bowel perforations and a colonic injury. Exploration of a right retroperitoneal hematoma reveals partial transection of the mid-ureter. The ureter appears viable. The next step is:
A. placement of an internal stent,
B. primary closure,
C. nephrectomy.
D. segmental resection and ureteroureterostomy,
E. transureteroureterostomy.
ANSWER=D
High velocity bullets cause local extensive damage by the "blast effect" on tissues. The visual appearance of the ureter at the site of injury is an unreliable sign of viability. Extensive local debridement and ureteroureterostomy is the best method to assure that local damage from the blast has not occurred. Primary closure or placement of an internal ureteral stent does not prevent extensive ureteral necrosis and the resulting sequelae from developing. Nephrectomy is not indicated. Transureteroureterostomy is unnecessary since massive ureteral loss has not occurred and a ureteroureterostomy can be successfully accomplished.

27. A 31-year-old woman had an ileal conduit urinary diversion at age ten years for a neurogenic bladder secondary to a lumbar myelomeningocele. She is now ten weeks pregnant. In addition to routine obstetrical care, she should have:
A. amniocentesis,
B. a Cesarean section at term,
C. no additional treatment,
D. prophylactic antibiotics,
E. serial renal ultrasounds.
ANSWER=C
An ileal conduit is not a contraindication to having a successful, normal pregnancy Unless a specific indication exists, the routine obstetrical care of a pregnant woman with an ileal conduit is the same as that for a woman with no previous urinary tract surgery. Antibiotics are only required if the patient is symptomatic.

28. The earliest clinically detectable pubertal change in a boy is:
A. enlargement of the testes,
B. appearance of pubic hair,
C. deepening of the voice.
D. scrotal rugation.
E. Increase in Phalliclength
ANSWER=A
While the order of events in adolescence is subject to some variability, measurable testis enlargement is generally the first event, with downy pubic hair appearing close there after

29. A 25-year-old male pedestrian is struck by an automobile. He has a left superior and inferior pubic ramus fracture as well as a fracture of the sacroiliac joint. He has a palpable bladder. No blood is noted at the meatus and the prostate is in normal position on digital examination. The next step is:
A. IVP.
B. retrograde urethrogram,
C. cystogram.
D. pelvic CT scan,
E. peritoneal lavage.
ANSWER=B
The most likely genitourinary injury in this patient is a prostatomembranous urethral disruption as suggested by the type of pelvic fracture. A urethrogram is the easiest, most specific, and most rapid way to assess this possibility.

30. A 55-year-old woman has flank pain, fever, and malaise. Her serum creatinine is 1.6 mg/dl. A CT scan of the abdomen is performed (see figure). The most appropriate treatment is:
A. nephroureterectomy.
B. percutaneous drainage,
C. percutaneous nephrolithotomy,
D. long-term antibiotics,
E. nephrectomy.



ANSWER=E
The clinical presentation and CT scan is most consistent with xanthogranulomatous pyelonephritis. Lipid laden macrophages are commonly identified in renal tissue and urine Such cells are not seen in the urine of patients with pyelonephritis Although renal

adenocarcinomas and transitional cell carcinomas have been reported to occur in such cases, they are rare and the clinical picture is most consistent with an inflammatory, not a neoplastic, disorder. The CT scan demonstrates the presence of a calculus and severe distortion of the renal parenchyma. In this case, complete removal of the kidney is warranted.

31. In a patient with Cushing syndrome due to adrenal adenoma, the changes in hormone secretion following a high dose dexamethasone suppression test are best represented by:

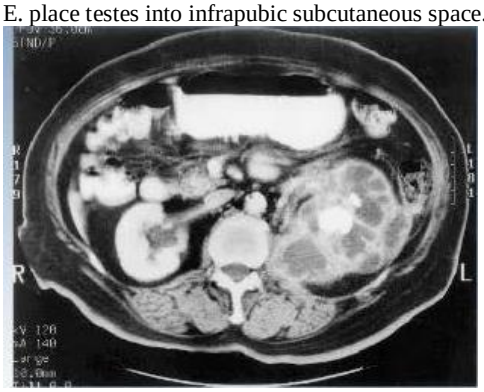
	ACTH Urinary	Free Cortisol
A.	↑	↓
B.	↑	↑
C.	↔	↔
D.	↓	↓
E.	↓	↑

ANSWER=C

Patients with adrenal Cushing syndrome have autonomous adrenal production of cortisol which suppresses ACTH Exogenous administration of either tow-dose or high-dose dexamethasone is unable to alter the autonomous adrenal production Therefore, it results in no change in either ACTH or urinary free cortisol For pituitary adenomas, high-dose dexamethasone is capable of suppressing ACTH and urinary free cortisol production.

32. A 23-year-old man suffers severe scrotal, penile, and buttock burns. Four days later, the scrotal skin appears necrotic and malodorous and the testes are visible. After administering antibiotics and performing local debridement, the next step is:

A. local wound care and delayed reconstruction.
B. split thickness skin grafts to cover testes.
C. place testes in subfascial thigh pouches.
D. create lateral subcutaneous flaps to cover the scrotum.
E. place testes into infrapubic subcutaneous space.



ANSWER=A

With major loss of scrotal skin from infection and burn, the testes and spermatic cords need to be debrided and kept viable until scrotal reconstruction. While testes have been placed in various deep pouches for immediate coverage, these positions may interfere with future spermatogenesis in a young male Bertini and Corriere have reported using saline dressings to cover exposed testes for several weeks until scrotal reconstruction or grafting is possible. Split thickness or mesh skin grafts are unsuccessful when there is infection, but may be useful later for reconstruction.

33. During a TURP, the surgeon resects into the rectum. A 1 cm laceration is seen. The next step should be:

A. prolonged urethral catheter drainage.
B. immediate suprapubic cystostomy and colostomy.
C. immediate perineal repair.
D. immediate suprapubic repair with an omental graft.
E. fulguration of the fistula edges.

ANSWER=A

Prostato-rectal fistulas after TUR will almost always heal with prolonged catheter drainage. If this fails, open repair may be necessary. Figuration will make the fistula worse as it will cause tissue necrosis. A low residue diet and dilation of the rectal sphincter may be helpful.

34. The process of apoptosis involves:

A. cytochrome C inactivation,
B. cyclin-dependent kinase stimulation,
C. caspase activation,
D. telomerase stimulation,
E. autoimmune cell death.

ANSWER=C

Apoptosis is the well-controlled cellular cycle of cell mortality in which an orderly and predetermined set of processes result in autolysis of the cell. Cyclin-dependent kinase inhibitors are linked to the control of cell cycle and DNA replication. They are checkpoints in which the cell's DNA is checked for damage prior to release of cell replication signals. Telomere length functions as a type of mitotic clock quantifying the number of cell cycles. When the telomeres shorten with each cell replication and when reaching a critical length they inhibit DNA replication and are linked to cell senescence. Telomerases reverse this process and promote the immortality found in cancer and other cell lines. Ischemic necrosis and autoimmune cell death do not involve these well-controlled cellular processes but instead induce an intrinsic and extrinsic cascade of cytotoxic substances

35. Inhibin is a substance derived from the testicle which mediates secretion of:

A. testosterone.
B. follicle-stimulating hormone,
C. luteinizing hormone,
D. gonadotropin-releasing hormone,
E. mullerian inhibiting factor.

ANSWER=B

Inhibin is a heterodimeric protein hormone in the transforming growth factor family of protein hormones including activin
Inhibin is secreted by the Sertoli cell for normal feedback inhibition of follicle-stimulating hormone (FSH)

36. The most important factor for successful vesicovaginal fistula repair using an omental interposition graft is:

A. the length of the omentum.
B. adequate mobilization of the gastroepiploic vascular pedicle,
C. adequate mobilization of the omentum by splenectomy,
D. ligation of the short gastric vessels,
E. vaginal closure using non-absorbable suture material.

ANSWER=B

In complicated vesicovaginal flstulae. a supravesical approach is appropriate. Since the surrounding areas may be poorly vascularized and fibrotic, omentum will supply good tissue into the area of the fistula. Even if the omentum is short it can be mobilized to reach the pelvis if the full length of the gastroepiploic arch is mobilized. Turner-Warwick has stated "...even the shortest omental apron will reach the pelvis..." The spleen should not need to be mobilized for this. Nonabsorbable sutures should not be used because they may become exposed to the fistulous area of either the bladder or vagina and cause calculi or persistent fistulae. If the omentum overlaps the area of the fistulae, the fistulae will usually close even if the suture lines in bladder or vagina are tenuous, break down, or cannot be closed adequately.

37. Renal blood flow is autoregulated primarily by:

A. renal innervation,
B. the macula densa.
C. endothelin.
D. efferent arteriolar tone,
E. afferent arteriolar tone.

ANSWER=E

Auto regulation of glomerular filtration rate and renal blood flow occurs primarily through variation in afferent arteriolar resistance Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance; a phenomenon known as fubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and glomerular filtration rates over wide ranges of perfusion pressures This autoregulation is present in both innervated and denervated kidneys

38. The increased risk for calculous disease during pregnancy is associated with:

A. increased parathyroid hormone levels,
B. absorptive hypercaiciuria.
C. placental suppression of 1,25-dihydroxycholecalciferol.
D. decreased urinary glycosaminoglycans.

E. decreased urinary citrate levels.
ANSWER=B
During normal pregnancy there is a physiological state of absorptive hypercalciuria PTH is suppressed and citrate and glycosaminoglycan excretion are increased.

39. Three days after an abdominal hysterectomy for cervical cancer, a 64-year-old woman has leakage of urine and purulent material from the vagina. A cystogram is normal, but a retrograde pyelogram demonstrates a left ureterovaginal fistula and marked hydronephrosis. The right upper tract is normal. Management should be I.V. antibiotics and:
A. ureteroneocystostomy.
B. ureteral stent placement,
C. nephrectomy.
D. ureteroneocystostomy with psoas hitch,
E. transureteroureterostomy.
ANSWER=B
In the present case the fistula appears to be limited and ureteral obstruction is not complete, as retrograde injection of contrast outlines the proximal ureter. Placement of a ureteral stent may result in resolution of the fistula. If retrograde placement is not successful, an antegrade approach can be undertaken. If neither approach is successful, immediate surgical repair would be indicated. Although a ureteroureterostomy could be considered, given the location of the fistula and what appears to be infection, ureteroneocystostomy may be the best approach.

40. The nerves of the bladder most affected by capsaicin are:
A. unmyelinated and parasympathetic,
B. myelinated and parasympathetic,
C. unmyelinated and sympathetic,
D. myelinated and sympathetic,
E. myelinated, parasympathetic and sympathetic.
ANSWER=A
Myelinated A-delta and unmyelinated C-fibers are the predominant sensory nerves from the urinary bladder. The latter are nociceptive, synapse in the sacral cord in the region of the parasympathetic motor neurons, and are depleted of their active substances by capsaicin

41. Which of the following is the most sensitive biochemical test for confirming the diagnosis of pheochromocytoma:
A. plasma free metanephrines.
B. plasma catecholamines,
C. urinary metanephrines.
D. urinary vanillylmandelic acid,
E. urinary catecholamines.
ANSWER=A
A number of biochemical tests are available to exclude or confirm the diagnosis of pheochromocytoma. Plasma free metanephrine testing is the most sensitive test (99%) Other acceptable clinical tests with lower sensitivities include urinary fractionated metanephrines (97%), plasma catecholamines (84%), urinary catecholamines (86%), urinary total metanephrines (77%), and urinary vanillymandelic acid (64%).

42. In a boy with a large ureterocele in a duplex system, the most compelling reason for combining a bladder reconstruction with partial nephrectomy is:
A. ipsilateral Grade 3 reflux,
B. contralateral Grade 3 reflux,
C. contralateral hydronephrosis,
D. bladder outlet obstruction,
E. sepsis.
ANSWER=D
Large ureteroceles can occasionally act as a ball valve causing bladder outlet obstruction and a stress pattern of urinary incontinence after toilet training. This occurs more often in males. Bladder outlet obstruction is often a reason for bladder reconstruction whether primarily or secondarily. Sepsis will respond to antibiotics and upper pole surgery. Reflux can be managed with prophylactic antibiotics and careful follow-up studies until it resolves or there are clear indications for intervention

43. A 65-year-old man with severe rheumatoid arthritis has been on chronic corticosteroid therapy. He undergoes a TURP, and is given I.V. hydrocortisone 50 mg every six hours that day. On the first postoperative day, his serum sodium is 124 mEq/l. The most likely cause of the hyponatremia is:
A. lack of mineraiocorticoid replacement,
B. salt-losing nephropathy,
C. dilutional hyponatremia from the TURP.
D. hypotonic I.V. fluids,
E. postobstructive diuresis.
ANSWER=C
The most likely cause of the decreased serum sodium is dilutional from fluid absorption during TURP. The patient may have adequate endogenous mineralocorticoids since aldosterone secretion is less depressed than cortisol secretion in patients on steroids. More importantly, the high dose of cortisol he received should compensate for any mineralocortical deficit since cortisol does have some mineralocorticoid activity. Patients who take a low to moderate dose of corticosteroid therapy do not usually require supplemental intravenous steroids.

44. Adrenal hemorrhage is most frequently associated with:
A. heparin induced thrombocytopenia,
B. trauma.
C. warfarin therapy,
D. sepsis.
E. adrenal adenoma.
ANSWER=A
Adrenal hemorrhage is an uncommon condition that is infrequently diagnosed while patients are alive It has classically been associated with meningococcal septicemia. Recent series; however, have demonstrated it is most often associated with heparin induced thrombocytopenia Sepsis, stress and warfarin therapy are rarer causes.

45. A 14-year-old boy with incontinence had posterior urethral valves resected as a neonate. The most likely etiology for his incontinence is:
A. occult neurogenic bladder,
B. sphincteric injury,
C. hyperreflexic bladder,
D. hypertonic bladder,
E. myogenic failure.
ANSWER=E
Adolescents with a history of valves may have one of several urodynamic patterns. In boys with incontinence, the most prevalent was poor contractility with resulting overflow incontinence. Although there may be elements of hyperreflexia or hypertonia, inadequate emptying due to myogenic failure is the most likely cause of his incontinence.

46. A 65-year-old diabetic man with a serum creatinine of 2.3 mg/dl is about to undergo a CT scan using a non-ionic contrast agent. Prevention of contrast-induced nephropathy is best achieved by prophylactic hydration and administration of:
A. acetylcysteine.
B. furosemide.
C. diphenhydramine.
D. mannitol.
E. prednisone.
ANSWER=A
Prophylactic oral administration of the antioxidant abety[cystine, along with hydratiom prevents the reduction in renal function induced by non-ionic; low osmolar contrast agents in patients with chronic renal insufficiency Although mannitol may be beneficial it is not as effective as acetylcysteine.

47. For patients with a 1 cm proximal ureteral stone, placement of an internal stent at the time of SWL will result in:
A. a higher stone free rate,
B. a lower complication rate,
C. less hematuria.
D. increased irritative voiding symptoms,
E. reduced analgesic requirements.
ANSWER=D
A randomized study demonstrated that stent placement at the time of SWL in patients with 1-2 cm solitary renal stones or proximal ureteral calculi less than 2 cm did not improve stone free or retreatment rates, lessen pain or hematuria. However, stent insertion was associated with an increase in irritative voiding symptoms

48. A 60-year-old woman complains of peristomal pain three days after undergoing a radical cystectomy and ileal conduit for bladder cancer. A 16 Fr. straight catheter is in the conduit; ureteral stents were not utilized. Her stoma was initially dusky, and is now black. The next step is:
A. remove conduit catheter,
B. loopogram.
C. bilateral percutaneous nephrostomies.
D. loop endoscopy.
E. observation.
ANSWER= D
Vascular thrombosis of the intestinal conduit is often related to excessive tension in the mesentery of the chosen bowel segment, a hematoma in the mesentery, or inadvertent ligation of the major blood supply to the conduit. This can lead to necrosis of the stoma or the entire bowel segment. The stoma may normally appear dusky at the termination of the procedure. However, a pink to red appearance of the stoma should develop over the ensuing hours or days. If the stoma worsens in color, the patient develops pain around the stoma, or an obvious urine leak occurs, stomal necrosis is likely. This problem should be corrected on a semi-emergent basis. Loop endoscopy should be performed to determine the extent of ischemia. Pressure from a 16 Fr Foley catheter is very unlikely to cause significant ischemia.

49. Calcium reabsorption induced by parathyroid hormone and Vitamin D occurs primarily in the:
A. proximal convoluted tubule,
B. collecting duct.
C. thick ascending loop of Henle.
D. distal tubule.
E. proximal straight tubule.
ANSWER=D
The site of action of both PTH and Vitamin D is on the distal tubule Calcium resorption occurs in this region Calcium is reabsorbed in the proximal convoluted tubule as well, but not under the influence of PTH.

150. A 49-year-old man had a lesion of the glans penis, biopsy of which revealed squamous cell carcinoma in situ. Physical examination now shows a well-healed scar and no inguinal adenopathy. The next step is:
A. partial penectomy.
B. laser fulguration of site of resection.
C. excision of previous scar.
D. total penectomy.
E. observation.
ANSWER=C
The lesion may have been cured by the first procedure and therefore options a, b and d are too aggressive based on this information Observation has the attendant risk of recurrence and the subsequent need for a more aggressive procedure

51. A 12-year-old girl has recurrent UTIs. An ultrasound shows a large, thickened bladder wall and bilateral hydronephrosis. A VCUG shows no reflux and a large PVR. The next step is:
A. MAG-3 renogram,
B. spinal MRI scan,
C. urethral pressure profile,
D. sphincter EMG during voiding,
E. cystoscopy and urethral dilation.
ANSWER=D
Dysfunctional voiding can be quite severe in its consequences. Reflux can be associated and/or secondary to this problem and corrective surgery may fail if the voiding disorder is not primarily addressed.

52. Non-adrenergic, non-cholinergic contraction of detrusor smooth muscle is mediated primarily by:
A. nitric oxide.
B. vasoactive intestinal polypeptide (VIP),
C. adenosine triphosphate (ATP),
D. cyclic guanosine monophosphate (cGMP).
E. enkephalins.
ANSWER=C
Postganglionic parsympathetic neurons release acetylcholine which activates muscarinic cholinergic (primarily M2 and M3) on the detrusor and elicits a contractile response Preganglionic and postganglionic neuron also contain purines such as adenosine triphosphate (ATP) and adenosine which produce depolarization of bladder smooth muscle and contraction by stimulation of purinergic receptors. Nitric oxide, cGMP, VIP, and enkephalins either have no effect on bladder contraction or are inhibitory

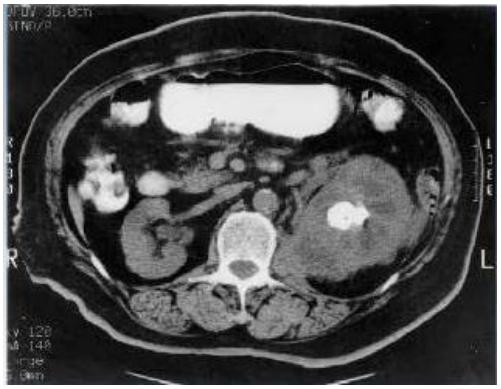
53. Placement of a ureteral stent in an unobstructed system will result in:
A. increase in ureteral contractility,
B. decrease in ureteral contractility,
C. atrophy of the ureteral mucosa,
D. atrophy of the ureteral smooth muscle,
E. decrease in intrapelvic pressure.
ANSWER=B
A number of changes occur after placement of a ureteral stent including: hyperplasia and inflammation of the urotheliumr smooth muscle hypertrophy, increased intrapelvic pressure, a decrease in ureteral contractility and vesicorenal reflux.

54. During the first three years of life, hymenal morphology demonstrates progression of its:
A. redundancy,
B. external ridging,
C. notching.
D. annular configuration,
E. crescentic configuration.
ANSWER=E
Hymenal development during the first 3 years of life demonstrates decreased notching and the prominence of external ridges as the hymenal tissue turns inward and becomes less redundant The hymenal configuration in the majority of children shifts from annular with tissue surrounding the vaginal orifice 360 degrees, to crescenteric, with an absence of tissue anteriorly Physicians should be familiar with these effects of normal aging on the hymenal appearance so they can differentiate normal development from post-traumatic or infectious changes.

55. The co-administration of which of these drugs is most likely to prolong the half-life of sildenafil:
A. trimethoprim-sulfamethoxazole.
B. levofloxacin.
C. terazosin.
D. ritonavir.
E. omeprazole.
ANSWER=D
Sildenafil is primarily metabolized by the cytochrome P45G isozyme 3A4. Ritonavir in particular is a potent inhibitor of multiple cytochromes and causes elevated levels of sildenafil to persist for up to 48 hours.

56. The most frequent complication associated with an intestinal anastomosis using surgical staples is:
A. staple line bleeding,
B. anastomotic leak,
C. bowel obstruction,
D. mesenteric hematoma,
E. wound infection.
ANSWER=A
Because stapling devices evert the suture line and do not crush tissue, bleeding at the anastomosis is not uncommon and occasionally may require light electrocoagulation. All other complications listed are uncommon and do not occur in any different frequency than with hand-sewn anastomoses

57. A 15-year-old boy Is undergoing revision of a colonic pull-through. During the operation, the left spermatic vessels are ligated and transected above the iliac vessels. The vas deferens is intact. Both testes are palpable in the scrotum. The next step is:
A. observation.
B. intraoperative Doppler ultrasound of testis,
C. microvascular reanastomosis of the spermatic vessels,
D. epigastric arterial revascularization,
E. left orchiectomy.



ANSWER=A

The blood supply to the testis is primarily from the spermatic vessels and the deferential artery. In children with abdominal undescended testes; primary orchidopexy after ligation of the spermatic vessels is associated with a 50% rate of testicular atrophy. However if the testis is left in-situ after spermatic artery ligation, blood flow will return to normal within 30 days due to improved collateral blood flow via the deferential artery. Therefore, no treatment is needed in this patient. A testicular scan will likely demonstrate decreased flow, but the findings will not alter management.

58. A 38-year-old man with Klinefelter syndrome has breast enlargement and weight loss. The next step is:

A. mammography,
B. abdominal and pelvic CT scan,
C. scrotal ultrasound,
D. serum LH level,
E. serum prolactin level.

ANSWER=A

Breast cancer is 20 times more frequent in men with Kleinfeiter syndrome than in normals Although routine screening mammography is not warranted, this patient has increasing gynecomastia and weight loss. The most critical condition to rule out is breast cancer

59. A ten-day-old infant boy is hospitalized for failure to thrive. After his umbilical stump fell off, fluid has intermittently drained from the umbilicus. The umbilical fluid has a creatinine of 10 mg/dl and grows > 100,000 cfu/ml of E. colt. The next step should be antibiotics and:

A. observation.
B. cannulation and injection of contrast.
C. VCUG.
D. closure of fistula,
E. urethral catheter drainage.

ANSWER=C

The differential diagnosis of a wet umbilicus in the infant includes patent urachus, omphalitis, simple granulation of the healing stump, patent vitelline or omphalomesenteric duct, infected umbilical vessel, and external urachal sinus. The finding of a urinary creatinine level in the fluid draining from the umbilical stump suggests a patent urachus. While probing the urachal tract may aid in diagnosis, a VCUG should confirm the diagnosis and fully evaluate the lesion and any associated bladder outlet obstruction. Gearhart JP. Jeffs RD: Exstrophy of the bladder, epispadias, and other bladder anomalies, in Walsh PC. Retik A6. Stamey TA.

60. Hypertension following renal parenchymal injury usually resolves within:

A. 10 days.
B. 6 weeks.
C. 3 months.
D. 6 months.
E. 1 year.

ANSWER=B

Hypertension fallowing renal parenchymal injury usually resolves within 6 weeks from the time of injury.

61. A 65-year-old diabetic man develops erectile dysfunction following traumatic urethral disruption. The corporal artery blood velocities on duplex Doppler study are 8 cc/sec after a 20-microgram injection of prostaglandin E1. The most likely cause of the erectile dysfunction is:

A. psychogenic,
B. pudendal artery injury,
C. pudendal nerve injury,
D. diabetic neuropathy,
E. arterio-venous malformation.

ANSWER=B

The most likely etiology for erectile dysfunction following traumatic urethral disruption is injury to the cavernous nerves The pudendal nerve provides sensory and motor innervation to the penis and bulbocavemosus muscles; respectively; and is not injured at the time of urethral disruption. The penile Doppler demonstrates inadequate blood flow increase to the penis in response to prostaglandin consistent with pudendal artery injury The patient was potent prior to the injury, and therefore diabetes is not a likely etiology.

62. A 47-year-old calcium oxalate stone former wishes to go on a high animal protein, low carbohydrate, weight loss diet. The following changes in urinary chemistries are expected:

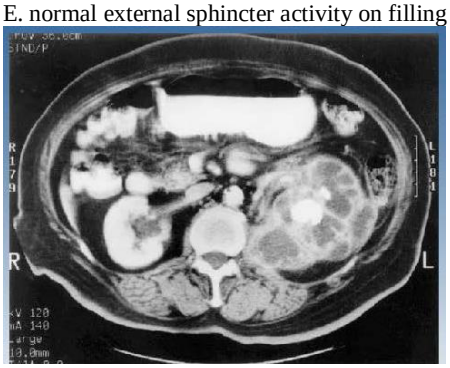
	Calcium	Uric Acid	Citrate	pH
A.	↑	↑	↓	↑
B.	↑	↑	↓	↓
C.	↑	↓	↑	↓
D.	↓	↓	↓	↑
E.	↓	↑	↓	↓

ANSWER=B

A number of metabolic changes occur with increased consumption of animal protein that are potentially deleterious for stone formers. These include increased calcium and uric acid excretion, decreased citrate excretion, and lowering of urinary pH.

63. The urodynamic evaluation of a demonstrate: six-year-old child with diurnal wetting without infection will usually demonstrate

A. a small hypertonic bladder,
B. detrusor hypercontractility.
C. abnormal external sphincter activity on filling,
D. abnormal external sphincter activity during voiding.
E. normal external sphincter activity on filling and voiding.



ANSWER=E

The urodynamics of a child who wets day and night and who has infections will usually show a small capacity bladder with increased intravesical pressure During filling, these patients will often demonstrate increased sphincteric EMG activity and the EMG may not be completely quiescent during early voiding In contrast, children with enuresis who do not have infection have the normal external sphincter response during filling and voiding

64. A two-month-old uncircumcised boy has an E. coli UTI with a temperature of 104 degrees Fahrenheit. Physical exam is normal except for a phimotic prepuce. He responds well to antibiotics. The next step is:

A. circumcision.
B. circumcision and cystoscopy,
C. renal ultrasound.
D. VCUG and ultrasound.
E. DMSA renal scan.

ANSWER=D

While there is an association between UTI and being uncircumcised, this boy should have a formal evaluation of his urinary tract prior to any intervention for his prepuce Phimosis is normal in neonates and does not necessarily indicate the cause of the UTI The decision as to whether a circumcision should be performed should wait until his urinary tract has been evaluated with a VCUG and US

65. In-vitro fertilization and intracytoplasmic sperm injection is associated with which of the following birth defects:
A. multicystic dysplastic kidneys,
B. ureteral atresia,
C. hypospadias.
D. UPJ obstruction.
E. vesico-ureteral reflux.
ANSWER=C
Assisted reproductive technology including in-vitro fertilization and intracytoplasmic sperm injection (ICSI) appears to double the risk of having a low birth weight, singleton delivery or a child with a major birth defect especially musculoskeletal or cardiovascular defects and hypospadias.

66. A 16-year-old girl with a neurogenic bladder remains incontinent despite an aggressive program of clean intermittent catheterization and anticholinergic medications. Videourodynamic evaluation demonstrates a flaccid, large capacity bladder and low urethral resistance. The best long-term management is continued intermittent catheterization and:
A. periurethral collagen injection
B. bladder neck tubuiarization.
C. an artificial urinary sphincter.
D. a pubovaginal fascial sling.
E. a Mitrofanoff procedure.
ANSWER=D
The best treatment in this situation is the pubovaginal sling. An advantage of the sling procedure for postpubertal females is that the dissection between the urethra and the vagina can be performed transvaginally, an approach considered by many to be simpler than pelvic dissection required for placement of an artificial urinary sphincter. Bladder neck tubularization produces a significant reduction in bladder capacity and the frequent necessity for reoperations to correct problems with catheterization Periurethral collagen injection can provide short-term improvement, however the long-term effectiveness remains open to question. A Mitrofanoff procedure will not solve the problem of low outlet resistance.

67. A 32-year-old man with decreased libido and erectile dysfunction has a serum testosterone of 100 ng/dl (normal 300-1000 ng/dl) and a prolactin of 150 ng/ml (normal 0-15 ng/ml). He has no visual field abnormalities, but an MRI scan demonstrates a 1 cm pituitary tumor. After three months of bromocriptine, his testosterone is 120 ng/dl, and he is still impotent despite normalization of his prolactin and a slight reduction in the size of the tumor. The most appropriate treatment is:
A. increase bromocriptine,
B. testosterone supplementation,
C. transsphenoidal pituitary surgery,
D. pituitary radiation.
E. hCG.
ANSWER=B
Many male patients with pituitary macroadenomas require testosterone replacement in addition to bromocriptine. The prolactin secreting tumor lowers LH secretion, probably by destruction of the pituitary cells which make LH Higher doses of bromocriptine are not indicated if the prolactin is normal Transsphenoidal surgery or pituitary radiation are not indicated if bromocriptine controls the tumor. Human chorionic gonadotropin would be an appropriate option if the patient was interested in fertility. However, in a single man whose chief complaint is impotence, testosterone replacement is easier to administer and less costly

68. Anosmia in an infertile man is usually associated with:
A. a pituitary tumor.
B. Kartagener syndrome.
C. Kallmann syndrome.
D. Young syndrome,
E. immotile cilia syndrome.
ANSWER=C
Anosmia is a characteristic component of hypogonadotropic hypogonadism (Kalman syndrome). These patients may have a variety of congenital midline defects. Patients with the immobile cilia syndrome and Kartagener syndrome have immobile sperm and immobile respiratory cilia. Young syndrome consists of azoospermia caused by epididymal obstruction, secondary to viscous secretions and chronic respiratory infections, but anosmia is not a characteristic Pituitary tumors are more likely to cause visual rather than olfactory disturbances.

69. A seven-year-old girl with myelomeningocele has bilateral hydronephrosis and urinary incontinence despite clean intermittent catheterization and oxybutynin 5 mg TID. CMG reveals a pressure of 35 cm H20 at a volume of 100 ml, and a detrusor leak point pressure of 54 cm H20 at a volume of 120 ml. The next step is:
E: 'enterocystoplastyT.
This patient has an extremely small capacity bladder with poor compliance. The patient is on maximal anticholinergic therapy. At this point urethral dilation or vesicostomy would not be the best choice. This is an older child and one should seek an alternative that would correct the dangerously high pressures, but also provide social continence. Enterocystoplasty would be the best option for this patient Given that this patient has bilateral hydronephrosis, urgent attention is needed Bladder augmentation will provide a low pressure reservoir with resolution of the hydronephrosis

70. Which treatment of idiopathic priapism is most frequently associated with gangrene of the penis:
A. bilateral pudendal embolization,
B. pressure dressings,
C. exchange transfusion,
D. cavernosal-saphenous vein shunt.
E. needle irrigation of corpora.
ANSWER=B
Tourniquet-like dressings can cause penile ischemia resulting in gangrene Surprisingly gangrene is not reported after bilateral pudendal embolization.

71. A 40-year-old man underwent a vasectomy ten years earlier. He undergoes an end-to-end vasoepididymostomy, and sperm are noted in the epididymis. Six months after this procedure, semen analysis reveals azoospermia. The next step is:
A. end-to-end vasoepididymostomy.
B. epididymai sperm aspiration and IVF.
C. testis biopsy.
D. repeat semen analysis in three months,
E. donor insemination.
ANSWER=D
Delayed return of sperm in the ejaculate may occur after vasoepididymostomy. Men without sperm in the epididymal fluid at the time of the anastomosis wifi never recover sperm in the ejaculate. Forty-one percent of patients will have delayed appearance of sperm in the ejaculate which can take up to one year or longer. The ultimate mean sperm count will be similar in those with immediate and delayed return of sperm. Delayed anastomotic obstruction is also the same in both groups.

72. A six-year-old boy with a history of imperforate anus has persistent diurnal urinary incontinence. Evaluation includes an MRI scan showing the conus meduilaris at the L-2 level. ACMG shows no postvoid residual, a flat filling curve with high volume detrusor instability, and normal voiding pressures. These findings suggest:
A. tethering of the spinal cord,
B. vesico-colonic fistula,
C. detrusor-sphincteric dyssynergia.
D. no significant uropathology.
E. intrinsic sphincteric deficiency.
ANSWER=D
Imperforate anus is accompanied by a high incidence of bony sacral and neurological anomalies that may lead to a neuropathic bladder. On the other hand; diurnal and nocturnal enuresis are common in six year olds. This youngster can completely empty the bladder volitionally; i.e T no postvoid residual. There is no evidence of spinal cord tethering in that the conus medullaris is in the normal adult position one expects by five years of age (upper border of L-2). A vesico-colonic fistula would be unlikely. The urodynamic study is not suggestive of detrusor-sphincter dyssynergia, and the detrusor instability at high volume is unlikely to suggest any serious underlying pathology.

73. A 14-year-old girl has primary amenorrhea. She is in the 25th percentile for height and has a webbed neck. Karyotype is 45 XO. The most likely genitourinary abnormality is:
A. renal agenesis,
B. horseshoe kidney,
C. vesicoureteral reflux.
D. UPJ obstruction,
E. vaginal agenesis.
ANSWER=B
This patient has Turner syndrome These individuals can be recognized by their typical physical findings including short stature; webbed neck and shield chest. Individuals with the 45 XO karyotype usually exhibit all the stigmata of the syndrome. Patients with the 46 XY karyotype are at increased risk for dysgerminoma and gonadoblastoma and require gonadectomy. Horseshoe kidney occurs with increased prevalence in patients with Turner syndrome and a renal ultrasound is warranted

74. A 65-year-old man has lethargy, malaise, and markedly diminished urinary stream. After urethral catheterization, he experiences a postobstructive diuresis that is managed by appropriate fluid replacement. The urine output is 1,500 cc daily. The serum creatinine and BUN are 6.8 mg/dl and 95 mg/dl respectively, and are unchanged three days later. The next step is:
A. continued observation,
B. retrograde pyelography,
C. dialysis.
D. renal ultrasound,
E. increased fluid replacement.
ANSWER=D
In patients with urinary obstruction and impaired renal function, postobstructive diuresis is not unusual Typically, urinary catheter drainage produces improvement in the blood levels of creatinine, urea nitrogen, and electrolytes to normal levels. If significant improvement does not occur, one must first consider inadequate drainage of the upper urinary tract because the bladder is poorly drained (poorly functioning catheter) or because of supravesical obstruction. The latter should be evaluated using renal ultrasound. No data to suggest the need for immediate dialysis in this patient is provided.

75. During erection, blood volume and pressure in the corpora cavernosa increase due to:
A. contractile activity of polsters at arteriovenous junctions,
B. shunting of arterial blood into the lacunar veins,
C. increased arterial flow in the dorsal penile artery,
D. increased arterial flow and passive venous compression,
E. arteriolar dilation and active venous compression.
ANSWER=D
Penile erection occurs in response to excitatory parasympathetic outflow (S2-S4) which produces vasodilation of internal pudendal and cavernosal arteries Arterial flow increases prior to a rise in intracavernous pressure Combined with active relaxation of trabecular smooth muscle, venous channels are passively closed; allowing tumescence. Prior theories postulating anatomical structures called polsters have been shown to be merely atherosclerotic plaques or artifacts.

76. A 26-year-old-man with C6 level quadriplegia managed with condom catheter drainage undergoes a urodynamic study. During bladder filling, he suddenly develops a pounding headache, profuse facial flushing, and sweating. His systolic blood pressure is 240 mm Hg. The next step is:
A. oral nifedipine,
B. drain the bladder,
C. intravenous chiorpromazine.
D. oral terazosin,
E. reduce rate of infusion.
ANSWER=B
Autonomic hyperreflexia (dysreflexia) occurs in patients with spinal cord injury above the T6-T8 level due to a massive unopposed sympathetic response to nociceptive stimulation of afferent impulses, commonly arising from the bladder or rectum. Although the acute effects of this syndrome can be prevented with ganglionic or alpha-adrenergic blockade, the most effective treatment once symptoms begin is removal of the offending stimulus, in this case, emptying the bladder.

77. A 50-year-old woman undergoes radical nephrectomy. Pathology reveals collecting duct carcinoma with invasion of the perinephric fat and microscopic involvement of one hilar node. Her metastatic evaluation is otherwise negative. The next step is:
A. observation.
B. radiation therapy to the flank,
C. cisplatin and 5-FU.
D. interleukin-2 and alpha-interferon.
E. M-VAC chemotherapy.
ANSWER=A
Collecting duct carcinoma is an unusual and aggressive type of renal tumor. While this patient is at risk for disease recurrence and progression, she is at this time without evidence of disease and no further therapy is indicated There are no data that demonstrate efficacy of any form of adjuvant therapy.

78. Classic features of prune-belly syndrome include dilated tortuous ureters, atretic anterior abdominal musculature, and undescended testes. In addition, there is usually hypoplasia of the:
A. radius,
B. tibia,
C. prostate,
D. vas deferens,
E. epididymis.
ANSWER=C
The prune-belly syndrome is characterized by the presence of a large dilated bladder associated with dilation in the area of the proximal urethra. This dilation is not due to outlet obstruction related to posterior urethral valves but is usually secondary to saccularization of the urethra due to a very small or hypoplastic prostate. It is important to recognize that children with prune-belly syndrome rarely have urethral valves.

79. In a child with a febrile UTI, the antimicrobial drug that achieves therapeutic levels in the urine, but not in the tissue is:
A. ampicillin.
B. gentamicin.
C. nitrofurantoin.
D. trimethoprim.
E. cephalexin.
ANSWER=C
It is important to treat children who are toxic from urinary tract infections with an antibiotic which achieves adequate blood and urine levels. All of the above antibiotics achieve adequate urine levels, but nitrofurantoin does not achieve adequate blood levels..

80. A 63-year-old man has left flank pain, gross hematuria, and a palpable left abdominal mass. He has lost 30 pounds in the last six months. CT scan reveals a 12 cm heterogenous left renal mass that involves the posterior abdominal wall and left mesocolon. Serum hematocrit is 27%. A bone scan reveals a sacral metastasis. The next step is:
A. radiation to the left flank,
B. systemic interleukin-2,
C. palliative nephrectomy.
D. diverting colostomy and radiation to the left flank,
E. left renal angioinfarction.
ANSWER=E
This patient has a symptomatic renal mass and a very poor prognosis. His poor performance status and bone metastases make it very unlikely that he will respond to therapy with biological modifiers. Percutaneous embolization of the mass should control the hematuria and also palliate his flank pain. Radiation therapy may provide some palliation but will not immediately control the hematuria. A diverting colostomy is not indicated unless obstruction develops and a palliative nephrectomy is likely to be excessively morbid in this patient with such a poor prognosis. Cytoreductive nephrectomy is not indicated before immunotherapy for patients with poor performance status and visceral metastases.

81. The diagnosis of testicular agenesis is confirmed by:
A. absence of an ipsilateral kidney,

B. absence of an ipsilateral vas deferens,
C. blind ending testicular vessels,
D. ipsilateral scrotal hypoplasia.
E. ipsilateral Mullerian structures.
ANSWER=E
The key clinical sign indicating testicular agenesis rather than a vanished testis is the presence of ipsilateral mullerian structures Testicular agenesis is much less common than the vanishing testis syndrome. True congenital absence of one testis is extremely rare and absence of both testes would result in a female phenotype.

82. Combined renal and liver transplantation is curative for which of the following:
A. amyloidosis,
B. primary hyperoxaluria.
C. Alport syndrome,
D. cystinosis.
E. Fabry's disease.
ANSWER=B
When performing renal transplantation, recurrence of the underlying renal disease which resulted in end stage renal disease is of significant concern. Renal amyloidosis, cystinosis, and Fabry's disease are all potentially treatable with renal transplantation despite significant recurrence Alport syndrome is not associated with recurrence after transplantation Simultaneous renal and liver transplantation will be curative in patients with end stage renal disease secondary to this process since the defect in oxalate metabolism occurs in the liver.

83. A 57-year-old woman has an incidentally discovered 3.0 cm lower pole mass in the right kidney. On CT scanning the mass is heterogeneous, appears to extend beyond the capsule of the kidney, and enhances after administration of I.V. contrast. Most of the mass measures +70 to +80 Hounsfield units but there is a small region within the tumor that measures -80 Hounsfield units. The left kidney appears normal. Appropriate management at this time is:
A. repeat CT scan in six months,
B. selective angiographic embolization,
C. laparoscopic cryoablation.
D. lower pole partial nephrectomy,
E. radical nephrectomy.
ANSWER=A
This patient has CT scan findings that are pathognomic of angiomyolipoma. Negative Hounsfield units confirm the presence of fat in this lesion; even though this can only be observed in a small region No treatment is indicated in an asymptomatic patient with a relatively small angiomyolipoma but follow up with periodic CT scans is appropriate. Extension into the perinephric fat and even lymph node involvement can be found in association with angiomyolipoma and is thought to represent a secondary site of origin rather than a metastatic lesion. The presence of fat on CT scan alone is diagnostic.

84. A 24-hour-old neonate has a left scrotal mass which does not transilluminate. The most likely diagnosis is:
A. extravaginal torsion of the spermatic cord,
B. intravaginal torsion of the spermatic cord,
C. incarcerated hernia,
D. endodermai sinus (yolk sac) tumor,
E. torsion of a testicular appendage.
ANSWER=A
Neonatal torsion usually involves the entire spermatic cord and its tunics and is extravaginal whereas torsion of the testicle in older children and young adults is intravaginal Extravaginal torsion is an in-utero or perinatal event because the testicular tunics are loosely attached to the scrotum at this time of development. These attachments form quickly and; therefore; extravaginal torsion becomes unlikely beyond the newborn period. Controversy exists as to whether the opposite side should be pexed at the same time.

85. A 20-year-old man has recurrent gross hematuria and left flank pain related to exercise. Urinalysis reveals microhematuria, rare RBC casts, and 2+ proteinuria. Renal ultrasound is normal. The study most likely to be diagnostic is:
A. IVP.
B. diuretic renography,
C. renal angiography,
D. ureteroscopy.
E. renal biopsy.
ANSWER=E
Recurrent gross hematuria in young adults occurring after an upper respiratory infection or exercise is the typical presentation of IgA glomerulonephritis (Berger's disease). Back pain and renal colic due to clots may be associated with the hematuria which can persist for days or weeks and may recur Though the course is chronic, young patients generally have a good prognosis. While renal insufficiency develops in approximately 25% of patients, a poor prognosis is more likely in those with older age, heavy proteinuria, hypertension or abnormal renal function at presentation. The underlying pathology evident on renal biopsy is proliferative and confined mostly to mesangial cells. These changes are usually limited to either some glomeruli or lobular segments of a glomerulus. Though deposits of IgA and IgG may be present on biopsy, these findings are not pathognomonic of the disease as mesangial deposits are found in other forms of glomerulonephritis. The presentation is classic for IgA nephropathy.

86. The parameter most predictive of a response to immunotherapy in patients with metastatic renal cell carcinoma is:
A. performance status,
B. pulmonary metastases.
C. prior nephrectomy,
D. hematocrit.
E. local recurrence after nephrectomy.
ANSWER=A
Mani et al. conducted a retrospective study of 84 patients with recurrent or metastatic renal cell carcinoma treated with biologic response modifiers. Multivariate analysis of prognostic factors in this patient population indicated that ECOG performance status, sarcomatoid histology and bone metastases were the most significant poor prognostic indicators. Other factors were less significant after adjusting for performance status. A patient's performance status prior to biologic response modifier therapy appears to be the most important predictor of response to treatment. Canobbio et al. also evaluated prognostic factors in 73 patients treated in a variety of phase II trials with Interferon-alpha and/or Interleukin-2 Using a multivariate analysis technique they also identified ECOG performance status and number of metastatic sites as the most important prognostic factors for survival.

87. As a part of normal renal function, most of the filtered solutes and water are returned to the systemic circulation by:
A. proximal tubular reabsorption,
B. proximal tubular secretion,
C. distal tubular secretion,
D. the countercurrent mechanism,
E. distal tubular reabsorption.
ANSWER=A
The normal GFR averages 130-180 l/day, a volume sixty times that of plasma volume. Therefore, most filtered solutes and water must be returned to the circulation. Tubular reabsorption accomplishes this phenomenon - mainly in the proximal tubule and then the loop of Henle.

88. The renal arterial disease associated with stable renal function to the affected kidney is:
A. atherosclerosis,
B. intima! hyperplasia,
C. fibromuscuiar hyperplasia,
D. medial fibroplasia.
E. perimedial fibroplasia.
ANSWER=D
Medial fibroplasia is the most common form of fibromuscular renal artery disease. It typically occurs in women between 30-50 year of age. It is associated predominately with hypertension and is rarely a cause of progressive renal ischemic atrophy. All other diseases listed are associated with progressive disease that can culminate in renal loss.

89. Deletions or mutations on chromosome 3 are most common in which histologic subtype of renal carcinoma:
A. clear cell,

B. chromophobe,
C. collecting duct,
D. medullary cell.
E. papillary.
ANSWER=A
Genetic alterations on chromosome 3 are common in the garden variety clear cell variant of renal cell carcinoma but are uncommonly found in the other histologic variants, suggesting distinct pathways to tumorigenesis

90. A 65-year-old man has chronic urinary retention associated with pedal edema. His BUN is 75 mg/dl. He is catheterized and a brisk diuresis of 500 ml/hr ensues. Forty-eight hours later the BUN is normal and the ankle edema is gone, but the diuresis persists. The probable cause of the persistent diuresis is:
A. overload of fluid prior to relief of the obstruction,
B. increased urea content in the urine,
C. failure to decompress the bladder slowly,
D. abnormal ADH secretion,
E. decreased tubular sodium reabsorption.
ANSWER=E
Although early diuresis after relief of obstruction may be due to solute and water overload in this instance the diuresis persists This sodium-losing nephropathy is due to impaired tubular reabsorption of sodium

91. A 28-year-old woman has headaches and blurred vision. Physical exam reveals bipedal edema and an S3 gallop. Her BP is 190/80 mm Hg. Urinalysis shows 10-20 RBC/hpf. Serum creatinine is 1.2 mg/dl. Abdominal exam reveals a right flank mass. The most likely diagnosis is:
A. polycystic kidney,
B. adrenal hemorrhage,
C. renal artery aneurysm,
D. renal arteriovenous fistula,
E. renal artery dissection.
ANSWER=D
The presentation of a young woman with hypertension and wide pulse pressure microscopic hematuria, flank mass, and congestive heart failure should immediately raise the suspicion of an AVF While the other answers given could explain hypertension, the key in this patient is congestive heart failure which in young individuals would be associated with significant AVF and a renal mass.

92. The histologic variant of renal carcinoma that has the worst one-year survival is:
A. renal medullary.
B. clear cell with VHL syndrome.
C. collecting duct.
D. sarcomatoid.
E. multifocal hereditary papillary.
ANSWER=A
Median survival for patients with medullary cell carcinoma, which is found primarily in patients with sickle cell trait is only 4 months; as most of these tumors are unresponsive to therapy. Sarcomatoid and collecting duct variants of renal cell carcinoma are also associated with a particularly poor prognosis, but median survival in each case is significantly longer than in patients with renal medullary carcinoma; and long-term survivors have been reported with these histologic variants.

93. A 60-year-old man has a prolonged ileus for three weeks after radical nephrectomy complicated by wound infection. Hydration is maintained by intravenous fluids. Serum sodium, potassium, bicarbonate, chloride, and creatinine are normal. The patient develops neuromuscular irritability, tetany, and behavioral disturbances. The cause of these symptoms is most likely:
A. hypoglycemia.
B. hypomagnesemia.
C. hypoproteinemia.
D. hypocalcemia.
E. hypercalcemia.
ANSWER=B
Prolonged parenteral fluid and electrolyte therapy which doesn't include magnesium can result in significant depletion of this electrolyte. The symptoms of hypomagnesemia include neuromuscular irritability and disturbed cerebration. Any patient maintained solely on prolonged intravenous fluids should have serum magnesium levels determined; particularly if he fails to improve. Electrolyte replacement should include appropriate amounts of magnesium.

94. A 58-year-old incontinent woman with urethral hypermobility undergoes a needle suspension with bone anchors. Four months later, she develops recurrent incontinence. The most likely cause is:
A. Urethrovaginal fistulas
B. Suture breakage
C. intrinsic sphincter deficiency
D. loosened or breakage of a bone anchor
E. ture cutting through pubocervical fascia
ANSWER=E
Early failure of bladder suspension procedures is generally related to improper surgical technique. Fifty percent of early failures are due to sutures cutting through the fascia because they were tied too tight Suture breakage or cutting through the rectus fascia where the sutures are tied are uncommon. Similarly, loosened or breakage of a bone anchor is rare. Similarly, most patients with intrinsic sphincter deficiency would continue to have stress incontinence immediately after a needle suspension. Urethrovaginal fistulas are rare in this setting

95. A 45-year-old hypertensive man has an elevated 24 hour urinary aldosterone after a period of salt loading. CT scan of the adrenals is normal. The best study for localization of a surgically curable lesion is:
A. MRI scan.
B. adrenal venography.
C. MIBG scan.
D. adrenal venous sampling,
E. iodochoiesterol scan.
ANSWER=D
Aldosterone secreting adenomas are unilateral and small in size (1-2cm). They may be smaller than the resolution of CT scanning, in this setting: adrenal venous sampling for aldosterone levels is the most sensitive assessment to identify a unilateral adenoma. An MRI scan offers no advantage over CT scan in this setting. Adrenal venography can be complicated by adrenal infarction and is rarely used

96. On the eighth day of total parenteral nutrition, the solution is interrupted in order to administer two units of packed red cells through the central venous line to correct a slowly falling hematocrit. The patient suddenly develops hypotension, tachycardia, and hypothermia. The most likely cause for this clinical picture is:
A. air embolus.
B. Candida sepsis,
C. gram-negative sepsis,
D. hypoglycemia,
E. transfusion reaction.
ANSWER=D
Intravenous hyperalimentation (total parenteral nutrition) is an important therapeutic technique Air embolism can occur either during insertion of the CVP line or during disconnect It is characterized by vascular collapse and can be prevented by maintaining the patient in the Trendelenburg position. Both Candida and gram-negative sepsis are complications of hyperalimentation but are associated with fever A transfusion reaction can take many forms such as allergic (hives); febrile (fever chills, flushing), or hemolytic, but this patient's clinical picture is not typical for a transfusion reaction. The clinical picture here is characteristic of hypoglycemia which occurs when the high carbohydrate hyperalimentation solution is suddenly stopped. Persistence of high endogenous insulin production leads to a profound rebound hypoglycemia. Therefore, hyperalimentation should not be abruptly stopped.

97. Three weeks after a Marshall-Marchetti-Krantz procedure, a 40-year-old woman develops pelvic and suprapubic pain associated with temperatures to 101 degrees Fahrenheit. She experiences difficulty adducting her thighs and has pain to palpation of her symphysis pubis. The most likely diagnosis is:

A. osteitis pubis,
B. osteomyelitis of pubis,
C. obturator nerve injury,
D. urinary extravasation,
E. pelvic abscess.
ANSWER=A
This patient exhibits classic signs and symptoms of osteitis pubis. Pelvic and suprapubic pain, fever, and difficulty with thigh adduction are classic findings with this disease Osteitis pubis has been reported to occur in up to 2.5% of women who have undergone the Marshall-Marchetti-Krantz procedure. Pubic osteomyelitis is possible but is far less common than osteitis pubis. Obturator nerve injury (usually secondary to retractors) can occur following cystourethropexy but does not present with symptoms 3 weeks postoperatively. Urinary extravasation would be very rare 3 weeks postoperatively. The signs and symptoms are much more in keeping with osteitis pubis than they are with pelvic abscess.

98. A 55-year-old obese man with epigastric discomfort is noted to have a 5 cm right adrenal mass on CT scan. The mass measures -40 Hounsfield units. The next step is:
A. observation.
B. 24-hour urine for metanephrines.
C. MRI scan.
D. right adrenalectomy,
E. dexamethasone suppression test.
ANSWER=A
A mass with Hounsfield units between -30 and -140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required.

99. A 12-year-old boy undergoes resection of a large retroperitoneal tumor. He requires transfusion of five units of banked blood and receives 1500 cc of Ringer's lactate solution. An intraoperative PT and PTT are both elevated. The coagulation factors most likely deficient from his transfusion are:
A. IV and VII.
B. II and V.
C. V and VIII.
D. V and X.
E. VIII and X.
ANSWER=C
In patients who receive massive blood transfusion (one blood volume or more) coagulation defects as measured by the PT and PTT may be encountered. All the coagulation factors are well preserved in banked blood except the labile factors V and VIII. These labile factors have very short half-lives. They are replaced with transfusion with fresh frozen plasma.

100. Six months following a TURP for BPH, a 65-year-old man complains of intermittent incontinence which occurs during the day and at night. His peak urinary flow rate is 24 ml/second, and he can voluntarily interrupt his urinary stream. The best diagnostic study is:
A. urethral pressure profilometry.
B. urine cytology.
C. flowmetry with perineal EMG.
D. CMG.
E. cystoscopy.
ANSWER=D
Detrusor instability and sphincteric damage are the two most common causes of incontinence following TURP in this individual the fact that the incontinence is intermittent and occurs at night suggests a detrusor rather than a sphincteric-related etiology. The fact that the peak flow rate is 24 cc per second suggests that outlet obstruction has, in fact; been relieved. The most likely explanation for this patient s incontinence is the presence of involuntary bladder contractions, and these are best diagnosed with a CMG. Approximately 50% of patients with prostatic obstruction will show evidence of involuntary bladder contractions on cystometry. After relief of the outlet obstruction, these disappear in approximately 70% of cases over a period of one to twelve months.

101. The best predictor of long-term recurrence-free status in a patient with non-invasive bladder cancer is:
A. tumor size.
B. Rb mutation.
C. tetraploid flow cytometry.
D. negative random biopsies.
E. negative cystoscopy three months after a TURBT.
ANSWER=E
In patients with a well- or moderately-differentiated Stage Ta bladder cancer the factor which best predicts the absence of recurrence is a post-TURBT negative cystoscopy at three months. The patient with no recurrence at three months cystoscopy has an 80% chance of no further recurrence. The other factors listed have a dramatic impact on progression rate but less impact on recurrence rate

102. A six-week-old boy was born at 27 weeks gestation. His postnatal course has been complicated by respiratory distress, bronchopulmonary dysplasia, and a patent ductus arteriosus. He has required long-term diuretic therapy. A KUB reveals calcifications in the mid and upper regions consistent with bilateral renal calculi. The most likely mechanism for the formation of the stones is:
A. hypercalciuria.
B. hyperuricosuria.
C. obstructive uropathy.
D. Type I renal tubular acidosis.
E. Type II renal tubular acidosis
ANSWER=A
Renal calculi occur in very low birth weight pre-term infants with a history of severe ventilatory problems and bronchopulmonary dysplasia Many of these infants require long-term treatment with diuretic agents to control heart failure The diuretic agent used most often is furosemide; which increases the rate of calcium excretion up to ten times normal Chronic hypercalciuria from furosemide therapy has been shown to lead to nephrocalcinosis and calculus formation. Loss of calcium from chronic administration of furosemide may lead to secondary hyperparathyroidism and bone changes. Treatment includes switching from furosemide to thiazides.

103. A 38-year-old woman develops incontinence ten days after an abdominal hysterectomy and anterior colporrhaphy for a large cystocele. She complains of leakage that is constant, but increases with an increase in abdominal pressure. The most likely diagnosis is:
A. overflow incontinence,
B. transient detrusor instability,
C. stress incontinence,
D. ureterovaginai fistula,
E. vesicovaginal fistula.
ANSWER=E
All of these causes are possible, but a vesicovaginal fistula is the most likely diagnosis of her incontinence and should be looked for even if stress incontinence is present.

104. A 60-year-old man has a Grade III. T1 transitional cell carcinoma of the bladder. He receives the fifth of six weekly instillations of intravesical BCG. Twelve hours later he has a temperature of 39.5 degrees Celsius, difficulty breathing, and hypotension. The most likely cause of this complication is:
A. reflux of BCG into the upper tracts,
B. acute urinary tract infection,
C. traumatic catheterization,
D. more virulent strain of BCG.
E. impaired immunological state.
ANSWER=C
The majority of patients tolerate BCG instillation well. In 2,602 patients treated with different strains of BCG, high fever (>39 degrees Celsius) was noted in 2 9% of patients. Life-threatening BCG sepsis was noted in 0 4% Fever greater than 39.5 degrees Celsius that does not resolve within *2* hours despite antipyretic therapy is potentially dangerous Since most cases of BCG sepsis are associated with intravenous absorption of BCG it is recommended that BCG not be given until at least one week after tumor resection. In the patients who died from BCG sepsis, almost all cases had traumatic catheterization before instillation therapy or they were treated too early after transurethral prostatectomy or biopsy. Treatment should include isoniazid 300 mg, rifampin 600 mg, and

ethambutol 1200 mg daily. After antitubercular drugs are started, corticosteroids may be given if the patient is toxic

105. A five-year-old girl receives 100 mg Pyridium (phenazopyridine) for irritative bladder symptoms one day after bilateral ureteral reimplantation. An epidural catheter is in place infusing meperidine. She becomes dyspneic and cyanotic, and pulse oximetry shows an oxygen saturation of 75%. Treatment should be:
A. naloxone,
B. folic acid,
C. terbutaline.
D. methylene blue,
E. racemic epinephrine.
ANSWER=D
Pyridium (phenazopyridine) can produce methemoglobinemia in patients with normal renal function. This may be manifest by peripheral cyanosis and decreased oxygen saturation. Increasing concentrations of methemoglobin produce dyspnea, headache, fatigue, tachycardia, and dizziness. Treatment with methylene blue is rapidly curative. Phenazopyridine produces methemoglobin by direct oxidation of hemoglobin. Methylene blue acts as an electron acceptor to permit reduction of the methemoglobin. Patients with narcotic overdose and respiratory insufficiency are not typically dyspneic, but exhibit depressed respirations

106. A 62-year-old woman complains of urge incontinence and difficulty initiating volitional urination 12 months after a needle suspension for stress incontinence. Her residual urine is 120 nil, and midvoiding pressure is 52 cm/H20 during an uninhibited contraction. The best management is:
A. clean intermittent catheterization,
B. oxybutynin and timed voiding,
C. urethral dilation.
D. removal of one suspension suture,
E. transvaginal urethrolysis.
ANSWER=E
This patient has urethral obstruction as indicated by elevated voiding pressures and a significant urinary residual Ditropan is contraindicated because of the obstruction, defined by the high voiding pressure and residual urine Intermittent catheterization will not solve the basic problem and is not likely by itself to control the unstable bladder. Removal of one suture will not address the problem because the urethra is likely fibrosed in place. Hyperdilation of the urethra will not resolve the obstruction. The suspension should be taken down with urethrolysis, although stress incontinence can return in up to 12% of cases.

107. A 72-year-old man on chronic hemodialysis has gross hematuria. A3 cm muscle-invasive transitional cell carcinoma is resected just lateral to the right ureteral orifice. Random biopsies of the bladder and prostatic urethra are negative. ACT scan shows no evidence of metastatic disease. He produces 100 cc of urine per day. The most appropriate management is:
A. surveillance cystoscopy in three months.
B. partial cystectomy with right ureteral reimplantation.
C. radical cystectomy and ileal conduit.
D. radical cystectomy and orthotopic neobladder.
E. radical cystectomy and bilateral nephroureterectomy.
ANSWER=E
The best management for muscle invasive bladder cancer is radical cystectomy. In a patient on chronic hemodialysis with essentially no urine output, there is little reason to preserve the kidneys, so the best choice for this patient is cystectomy and bilateral nephroureterectomy, which will simplify the procedure and the patient's recovery by obviating the need to create any form of urinary diversion

108. Berry aneurysms of the circle of Willis are most frequently associated with:
A. renal aneurysms.
B. autosomal dominant polycystic kidneys,
C. autosomal recessive polycystic kidneys,
D. horseshoe kidney,
E. multicystic dysplastic kidneys.
ANSWER=B
Ten percent of patients with autosomal dominant polycystic disease have berry aneurysms and subarachnoid hemorrhage can be a lethal consequence The high incidence of hypertension with autosomal polycystic kidney disease may contribute to the frequency of bleeding from the berry aneurysm.

109. A 65-year-old man has dribbling incontinence six weeks after an uncomplicated abdominoperineal resection for rectal carcinoma. One year prior to surgery, he had an AUA Symptom Score of 17 and a palpably enlarged, but benign prostate. A CMG shows a PVR of 200 cc and no detrusor contraction. The best treatment is:
A. neural stimulation.
B. TUMT.
C. suprapubic cystostomy.
D. clean intermittent catheterization.
E. indwelling urethral catheter and repeat CMG in two weeks.
ANSWER=D
During the course of abdominoperineal resection of the rectum; the sympathetic and parasympathetic nerves to the bladder and bladder neck may be injured This results in detrusor a reflex i a and possible denervation of the external sphincter. Clinically this is manifested as urinary retention and possibly stress incontinence Initial treatment should be clean intermittent catheterization while awaiting neurologic recovery which can take as long as one year Once detrusor activity returns, the surgical treatment of benign prostatic hyperplasia may be considered if diagnosed urodynamically.

110. A 67-year-old man has adenocarcinoma of the bladder located on the lateral wall, 3 cm cephalad to the left ureteral orifice. Abdominal and pelvic CT scan and chest radiograph show no evidence of metastatic disease. The next step is:
A. colonoscopy.
B. IVP.
C. repeat TURBT.
D. partial cystectomy,
E. radical cystectomy.
ANSWER=A
Most adenocarcinomas of the bladder represent metastases from other primary adenocarcinomas such as colon, breast, or lung cancers. Hence, a primary source other than the bladder must be considered and this patient should undergo colonoscopy for further evaluation prior to administration of definitive therapy

111. A 42-year-old man is undergoing laparotomy for intraabdominal injuries and bladder rupture. Bleeding is noted in the perivesical area. After repair of bladder rupture, pelvic pressure does not stop the persistent oozing. Multiple blood transfusions are given and his core temperature is 35.5 degrees Celsius. The next step is:
A. intraoperative arteriography.
B. ligation of the hypogastric arteries.
C. intravenous aminocaproic acid.
D. close the abdomen and place patient in a MAST suit.
E. pack pelvis and close abdomen.
ANSWER=E
Most major bleeding from the pelvis following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization. Ligation of hypogastric arteries or veins is seldom helpful in management because bleeding occurs from multiple pelvic veins. On-table arteriography is technically difficult, time consuming, and provides poor images and should therefore not be used. The use of a MAST suit in such cases has not been proven to be effective. Bleeding is due to trauma and unlikely to respond to medical therapy.

112. A 38-year-old, T-10 paraplegic man undergoes a cystoscopy and transurethral sphincterotomy. In the recovery room he is apprehensive, diaphoretic, and agitated. Vital signs reveal a BP of 92/55 mm/Hg, pulse 120, respiration 24, and temperature 99.8 degrees Fahrenheit. The most likely diagnosis is:
A. autonomic dysreflexia,
B. gram-negative septicemia,
C. cerebral hypoxia,
D. water intoxication,
E. urinary extravasation.
ANSWER=B

The spinal cord lesion is too low for this to be autonomic dysreflexia. Also, autonomic dysreflexia would produce a lowering of the pulse rate and an elevation of the blood pressure. Endotoxin released by circulating gram-negative bacilli can produce the symptoms and signs described in this patient and are the most likely cause of this patient's problems. Blood and urine cultures should be obtained at once and therapy with broad spectrum, systemic antibiotics, and intravenous fluids should be instituted simultaneously.

113. A 63-year-old man is disease-free two years after BCG therapy for CIS and a Grade 2, Stage T1 bladder cancer. In addition to physical examination, cystoscopy, and urinary cytology, evaluation at this time should include:
A. urinary NMP-22 testing.
B. IVP.
C. selective upper tract cytology,
D. random biopsies of the bladder,
E. prostatic urethral biopsy.
ANSWER=B
The frequency of development of metachronous upper tract tumors in patients with superficial TCC of the bladder is not exactly known, but has been estimated to be very low (1-3%). The incidence is higher in patients with higher stage (T2+) primary lesions (2-8%). Patients treated for high-risk superficial TCC with BCG demonstrate a higher rate (13-18%) of recurrence over three years follow-up. The best approach to follow-up in patients treated with BCG is therefore the addition of upper tract imaging in the form of an IVP. Selective cytology as a routine practice is not recommended.

114. A 62-year-old man with erectile dysfunction following a nerve-sparing radical prostatectomy reports a lack of response 20 minutes after taking a 100 mg dose of sildenafil. The next step is:
A. placement of a penile prosthesis,
B. penile injection with PGE-1.
C. increase the dose of sildenafil.
D. counsel patient to wait at least 60 minutes before expecting a response.
E. add an alpha-1 adrenergic antagonist to next dose.
ANSWER=D
The onset of action of sildenafil is 50 minutes if taken on an empty stomach. This medication requires psychic or physical stimulation to facilitate a response.

115. The risk of hemorrhagic cystitis associated with cyclophosphamide may be reduced by concomitant treatment with:
A. Mesna.
B. acrolein.
C. ifosfamide.
D. oxopentanoic acid.
E. tetrahydrocannabinol.
ANSWER=A
Ifosfamide is an oxazaphosphorine and a structural analogue of cyclophosphamide. Acrolein is a toxic metabolite of these compounds that is; in part responsible for the urothelial injury Mesna protects the urothelium by binding the toxic metabolites Tetrahydrocannabinol is useful for its antiemetic properties.

116. A 68-year-old man with intermittent gross hematuria has a large papillary tumor found within a bladder diverticulum. An IVP shows normal upper tracts and urine cytology is positive. Cold cup biopsy of the lesion reveals a Grade 2 TCC. Random biopsies of normal appearing bladder are negative. Further management should entail:
A. ureteral cytologies.
B. TURBT.
C. TURBT followed by BCG.
D. partial cystectomy,
E. radical cystectomy.
ANSWER=D
By definition a bladder diverticulum is lined by mucosa and lamina propria only. Therefore, a lesion within a diverticulum should be biopsied and not resected given the high risk for perforation and spillage of tumor cells. Random bladder biopsies should be performed, especially in the face of a positive cytology to guide the decision of partial cystectomy versus cystectomy.

117. During a cadaver donor nephrectomy, a normal main renal artery and a small accessory renal artery 2 mm in diameter supplying the lower pole of the left kidney are found. The best management is to:
A. declare the kidney unsuitable for transplantation.
B. perform donor nephrectomy with ligation of the small lower pole branch.
C. perform donor nephrectomy and anastomose smaller artery into side of main artery.
D. perform donor nephrectomy with en-bloc Carrel aortic patch for transplantation.
E. perform donor nephrectomy and implant each artery separately.
ANSWER=D
It is vital to preserve circulation through the lower pole artery, since most of the renal pelvic and ureteral blood supply comes from this vessel and its sacrifice will result in a high percentage of ureteral slough. The most effective way to preserve flow through this small vessel would be to resect the entire aortic segment involved, allowing implantation of the kidney utilizing the Carrel patch technique. In situ repair at the time of donor nephrectomy would be technically difficult It would be unwise to transect both vessels, since the small one would be difficult to perfuse, and anastomosis in the recipient will be difficult unless microvascular extracorporeal reconstruction is performed. Failure to preserve polar renal arteries that supply either the lower pole and ureter or more than 10% of the renal parenchyma may lead to renal ischemia, segmental infarction, or urinary fistula formation.

118. Estrogen is effective in controlling lower urinary tract infections in post-menopausal women by:
A. decreasing vaginal pH.
B. decreasing bacterial adherence,
C. altering the fecal reservoir of bacteria,
D. increasing antibody production,
E. increasing antibiotic diffusion into the vagina.
ANSWER=A
Pathogenic bacteria from the bowel most likely gain access to the lower urinary tract by direct extension and vaginal colonization. E,, call is rarely present in the vagina at a pH less than 4.5. Post-menopausal women have a vaginal pH of 5.2; and this decreases following estrogen therapy. A decrease in vaginal colonization with Enterobacteriaceae has been seen after such treatment. Answers B, C: D or E have not been affected by estrogen treatment.

119. After hemodialysis, serum PSA levels are:

	Total	**Free: Total Ratio**
A.	↓	↔
B.	↓	↓
C.	↔	↔
D.	↔	↓
E.	↓	↑

ANSWER=C
While patients with renal failure have significantly higher levels of free PSA and free to total PSA ratio compared with controls, these values do not change after hemodialysis. It is also interesting that hemodialysis patients do not appear to have any age related increases in free or total PSA.

120. A five-year-old boy with bladder exstrophy underwent neonatal closure with bilateral posterior iliac osteotomies. He remains totally incontinent despite repair of his epispadias at two years of age. Studies reveal a bladder capacity of 50 cc with mild hypertonicity. The next step is:
A. continent urinary diversion.
B. augmentation cystoplasty.
C. bladder neck reconstruction.
D. injection of collagen at the bladder neck.
E. bladder neck reconstruction and augmentation cystoplasty.
ANSWER=E
Vesical neck reconstruction using a Young-Dees-Leadbetter procedure, or modification thereof, is the treatment of choice to provide continence for children with bladder exstrophy. This patient has a very small bladder capacity associated with decreased compliance The single most important parameter in achieving

urinary continence in patients with bladder exstrophy is bladder capacity The best chance of producing complete urinary control is with simultaneous vesical neck reconstruction and bladder enhancement. Augmentation cystoplasty alone will not solve the problem of an incompetent bladder-neck. A rectus fascial sling does not solve the problem of a small bladder capacity. Collagen is unlikely to have durable success, but may help ascertain if the bladder will enlarge.

121. The disease that is caused by an organism similar to Klebsiella pneumoniae and is identified by the presence of Donovan bodies is:
A. chancroid.
B. granuloma inguinale,
C. lymphogranuloma venereum,
D. malakopiakia.
E. bacterial vaginosis.
ANSWER=B
Granuloma inguinale is a sexually transmitted infection of the skin and subcutaneous tissue of the inguinal and perineal area It is caused by Calymmatobacferium granulomatis, an organism related to Klebsiella pneumoniae. The lesion is characterized histologically by rods with bipolar staining, called Donovan bodies, that are noted in monocytes in a smear of tissue from the ulcer base. The lesion may be confused with chancroid. Bacterial vaginosis or nonspecific vaginitis is usually detected by clue cells and caused by Gardenerella vaginalis.

122. In a patient with metastatic prostate cancer, a false-negative bone scan is suggested by:
A. non-visualization of the kidneys,
B. non-visualization of the liver,
C. asymmetrical isotope distribution in the bones,
D. visualization of the liver,
E. increased pulmonary visualization.
ANSWER=A
Patients with extensive bony metastases can occasionally have the majority of the technetium polyphosphate localized to the skeleton, giving the appearance of a normal scan. The characteristic finding of a "super scan" associated with diffuse metastases is the lack of renal excretion of the radioisotope.

123. Spontaneous bladder perforation after enterocystoplasty is most likely the result of:
A. Transmural cystitis,
B. mucous plug,
C. catheter trauma,
D. ischemic necrosis,
E. bladder calculi.
ANSWER=D
ischemic necrosis of the augmented bladder wall may result from inefficient bladder emptying and chronic overdistension. Patient noncompliance with intermittent catheterization and mucus plugs may contribute to chronic overdistension; but are not the primary cause for bladder rupture after augmentation cystoplasty. A lack of detrusor sensation, chronic inflammation and the presence of bladder calculi may also be contributing factors.

124. A 70-year-old man with metastatic colon cancer and indwelling ureteral stents develops high volume gross hematuria. Arteriography demonstrates a fistula between the right common iliac artery and ureter. The next step is:
A. stent removal,
B. percutaneous nephrostomy,
C. embolize common iliac artery,
D. open surgical repair,
E. endovascular graft placement.
ANSWER=E
The majority of arterial ureteral fistulas occur in patients who have had extensive pelvic surgery; radiation therapy and indwelling ureteral stents A high percentage involve the common iliac artery but may also involve the hypogastric artery Patients can experience high volume bleeding resulting in hemodynamic instability. Emergency arteriography should be performed if this complication is suspected. While embolization of the common iliac artery will control hemorrhage; a femoral to femoral artery bypass is required to provide adequate circulation to the ipsilateral lower extremity. Placement of an endovascular stented graft or an autologous vein covered stent are less invasive options obviating the need for vascular reconstructive surgery in a patient with limited life expectancy. The ureteral stent should be removed and a percutaneous nephrostomy placed after this procedure to limit recurrent fistula formation.

125. The major risk associated with harvesting the sural nerve for grafting after resection of a neurovascular bundle during radical prostatectomy is:
A. painful neuroma.
B. sensory loss on the medial aspect of the foot,
C. motor loss of the calf muscles,
D. foot drop.
E. DVT.
ANSWER=A
Harvesting of the sural nerve is associated with sensory loss on the lateral surface of the foot, which typically is not functionally significant The sural nerve is primarily a sensory nerve and muscular weakness should not occur DVT is not common No motor defect results. The major long-term complication is the formation of a painful neuroma that can develop at the proximal end of the transected nerve.

126. In pediatric patients with ventriculoperitoneal shunt infection following augmentation cystoplasty, the usual time to presentation, and the most frequent type of bacterial infection, is:
A. < 30 days; Gram positive.
B. < 30 days; Gram negative.
C. > 30 days; mixed growth.
D. > 30 days; Gram positive.
E. > 30 days; Gram negative.
ANSWER=E
Ventriculoperitoneal shunt infections following augmentation cystoplasty are seen in 4 to 20% of patients. They most commonly present greater than 30 days after the procedure with a gram negative organism isolated from the shunt. The bacteria usually is the same organism obtained from the preoperative urine culture. Symptoms include fever and gastrointestinal complaints and patients may or may not have neurologic signs. A shunt series usually demonstrates an obstructed peritoneal limb.

127. The major disadvantage of 5-flucytosine for treatment of Candida albicans pyelonephritis is:
A. nephrotoxicity,
B. poor renal concentration,
C. allergic reactions,
D. organism resistance,
E. hepatotoxicity.
ANSWER=D
Flucytosine is readily absorbed from the gastrointestinal tract. It is eliminated by glomerular fittration: and its dosage needs to be modified in the presence of renal insufficiency. Successful management of urinary tract infections is common; but primary resistance to the drug occurs in approximately 10% of infections caused by C. albicans and in up to 30% of infections caused by other species

128. An 80-year-old man has newly diagnosed prostate cancer metastatic to his vertebrae, ribs, and bony pelvis. He has severe back pain and leg weakness. He is on coumadin for atrial fibrillation. Initial treatment should be:
A. stilbestrol.
B. LH-RH agonist.
C. LH-RH agonist and flutamide.
D. bilateral orchiectomy,
E. ketoconazole.
ANSWER=E
Impending spinal cord compression mandates immediate androgen deprivation in this patient. Of the treatments above; only bilateral orchiectomy and ketoconazole will provide immediate reduction of circulating androgens. Due to the patient's anticoagulation; ketoconazole is the safest of the two choices.

129. The nerve supply of the adrenal gland is:
A. parasympathetic to medulla,
B. sympathetic to medulla.
C. parasympathetic to cortex; sympathetic to medulla,
D. sympathetic to cortex and medulla,
E. sympathetic to cortex; parasympathetic to medulla.
ANSWER=B
The only nerves to the adrenal which have been demonstrated are sympathetic branches from T/10-U1 coursing through the splanchnic nerves. Cortical innervation or parasympathetic innervation have not been demonstrated

130. A 32-year-old woman has had right flank pain and spiking fevers to 102 degrees Fahrenheit for three days. Her urine culture is positive. A CT scan without contrast is normal, but with contrast, a localized area of hypoattenuation is seen in the lower pole of the right kidney. The most appropriate management is LV. antibiotics and:
A. observation.
B. DMSA scan,
C. retrograde pyelogram.
D. percutaneous drainage,
E. surgical drainage.
ANSWER=A
This patient has acute focal bacterial nephritis which usually responds to I V antibiotics Drainage is rarely required

131. A 49-year-old man with poor libido and erectile dysfunction has a testosterone level of 122 ng/d! (normal 200-800 ng/dl). He has mild bilateral testicular atrophy, and his prostate is approximately 15 gm size, without induration or nodules. His serum PSA is 2.4 ng/mi. The next step is:
A. antibiotics and repeat PSA in six weeks,
B. free testosterone level,
C. testosterone supplementation,
D. transrectal ultrasound guided prostate biopsy.
E. % free PSA.
ANSWER=D
The normal PSA for a man under 50 is < 2.5, and in light of the low testosterone, this patient should have a much lower PSA level. Hence, a PSA of 2.4 in this setting is suspicious for cancer and a prostate biopsy should be performed. There is no role for a % free PSA estimation, as it will not alter management at this time. Alternatively, the PSA could be repeated after testosterone replacement.

132. To perform an appendicovesicostomy, the blood supply to the appendix that must be preserved arises from a branch of which artery:
A. ileal.
B. anterior cecal,
C. posterior cecal,
D. ascending colic,
E. inferior mesenteric.
ANSWER=A
The appendix is supplied by the appendiceal artery, usually a branch of the ileal artery, itself a branch of the superior mesenteric artery.

133. E. coli causing uncomplicated cystitis in women has recently demonstrated the greatest increase in resistance to which antibiotic:
A. ampicillin.
B. nitrofurantoin.
C. cefazolin.
D. trimethoprim-sulfamethoxazole.
E. ciprofloxacin.
ANSWER=D
A number of studies have demonstrated both community acquired and hospital acquired uropathogen isolates; especially E. coli: resistance to trimethoprim/sulfa has risen in the past 5 to 7 years While ampicillin has the highest absolute resistance rate, the greatest increase is trimethoprim/sulfa from 9% to 18% resistance in the past five years.

134. A 74-year-old man with metastatic carcinoma of the prostate has been receiving LH-RH treatment for two years. He is asymptomatic except for severe hot flashes. These are best managed by:
A. diethylstnbestrol.
B. megestrol acetate.
C. stopping LH-RH and performing bilateral orchiectomy,
D. flutamide.
E. stopping LH-RH and following serum PSA.
ANSWER=B
The optimal treatment of hot flashes from hormonal therapy is megestrol acetate (Megace). Although anecdotal reports suggest that DES may be helpful, significant gynecomastia may occur, as well as thromboembolic complications. Although intermittent hormonal therapy has been reported to diminish this problem, its efficacy in terms of treating prostate cancer remains to be established. Orchiectomy and adding flutamide are not likely to change this man's symptoms.

135. The best artery to use as a pedicle for a gastrocystoplasty when avoiding use of the antrum is the:
A. right gastroepiploic,
B. left gastroepiploic,
C. gastroduodenal,
D. right gastric,
E. left gastric.
ANSWER=A
The antrum should probably be avoided when performing a gastrocystoplasty because bladder distention might lead to increased gastrin secretion and ulcer formation. To avoid the antrum; the pedicle should come from the right and the optimal vessel is the right gastroepiploic

136. A 25-year-old woman has urinary frequency and dysuria. Urinalysis demonstrates pyuria and bacteriuria. The nitrite dipstick test is negative. The most likely causative organism is:
A. E coli.
B. Proteus mirabilis.
C. Klebsiella pneumoniae,
D. enterococcus faecalis.
E. Pseudomonas aeruginosa.
ANSWER=D
The ability of bacteria to reduce nitrate to nitrite is variable. Members of the Enterobacteriaceae family such as E. coli and Proteus species are able to reduce nitrite while enterococci, streptococci and Candidal species do not have this property. Since enterococci have unique antibiotic susceptibility, the nitrite test can be used to guide initial therapy

137. A 33-year-old man with infertility has azoospermia. He has small testes bilaterally and a serum FSH of 15 mlU/m! (normal = 2-12 mlU/ml). Bilateral testis biopsies reveal rare spermatogonia and bilateral CIS. In addition to sperm retrieval, the next step is:
A. serial ultrasound and tumor markers,
B. repeat biopsy in six months,
C. bilateral inguinal orchiectomy,
D. radiation therapy to both testes,
E. systemic chemotherapy.
ANSWER=D
Due to the high association of subsequent development of overt carcinoma, testicular CIS maybe treated by orchiectomy, radiation therapy or chemotherapy. Radiation therapy is effective and may maintain Leydig cell function. In cases of bilateral disease bilateral orchiectomy would be a drastic recommendation. Given the potential toxicities of chemotherapy compared to radiation, this approach would be reserved for contralateral CIS in the setting of metastasis from the primary tumor. Prior to treatment, testicular sperm extraction should be considered as some men with maturation arrest on diagnostic biopsy will have sperm found with a more extensive biopsy.

138. The arterial blood supply to the renal medulla is from:
A. afferent arterioles,
B. efferent arterioles,
C. interlobar arteries,
D. arcuate arteries,
E. interlobular arteries.
ANSWER=B

The blood supply to the renal medulla is from the efferent arterioles of the juxtamedullary glomeruli. The vessels descend into the medulla by looping around the arcuate vessels, giving small branches to the capillary plexus of the medulla.

139. The most effective treatment of balanitis xerotica obliterans affecting the prepuce, glans penis, and the meatus is:
A. topical corticosteroids.
B. 5-fluorouracil cream,
C. circumcision,
D. meatal dilation,
E. meatoplasty.
ANSWER=C
BXO is an inflammatory condition of the glans and prepuce of unknown cause. It frequently produces significant phimosis and may produce complete obliteration of a glans penis. The etiology remains controversial as is the treatment. In a study of 287 patients, Depasquale, et.al demonstrated 92% of patients undergoing circumcision alone had symptom relief and arrest of the progress of the disease. 3.9% of patients had development of glans ulceration requiring glans resurfacing and 4% had meatal stenosis significant enough to require meatotomy or meatoplasty.

140. A 24-year-old man is treated for a Stage III mixed germ cell tumor of the right testis by inguinal orchiectomy, four cycles of BEP chemotherapy, and postchemotherapy bilateral RPLND. He remains disease free with normal serum tumor markers for four years. Current physical examination and serum hCG are normal. Serum AFP is 27 ng/dl {normal < 10 ng/dl), and a CT scan of the chest, abdomen, and pelvis demonstrates a solitary 2 cm mass in the right retrocrural area. The next step is:
A. observation.
B. repeat AFP after I.M. testosterone,
C. additional BEP chemotherapy,
D. salvage chemotherapy,
E. excision of the mass.
ANSWER=E
Late recurrences more than two years after chemotherapy for advanced stage testis cancer are rare; potentially lethal and usually unresponsive to additional chemotherapy. They are therefore best managed surgically when an identifiable lesion is found. Most late recurrences are pathologically pure teratoma, which has a more favorable prognosis than if viable cancer is found. Observation is not appropriate in a patient with a new retroperitoneal mass and any marker elevation. IM testosterone will suppress cross-reactivity of the beta subunits of LH and hCG, but will have no effect on AFP

141. Retroperitoneal organs juxtaposed to the left kidney are:
A. adrenal, spleen, pancreas,
B. adrenal, pancreas, colon,
C. spleen, jejunum, colon,
D. adrenal, colon, spleen.
E. spleen, duodenum, pancreas.
ANSWER=B
Retroperitoneal structures that are juxtaposed to the left kidney are the adrenal pancreas, and colon The spleen and jejunum are intraperitoneal organs

142. A 45-year-old woman has dysuria and a thin white vaginal discharge. Urinalysis is normal. Vaginal pH is 6.0. The application of potassium hydroxide to the discharge results in a fishy odor. Treatment is:
A. fluconazole.
B. doxycycline.
C. acyclovir.
D. metronidazole.
E. ciprofloxacin.
ANSWER=D
This patient has bacterial vaginosis; a polymicrobial infection usually including Gardnerella vaginalis. Bacteroides species. Mycoplasma hominis. Mobiluncus species, and Pepto Streptococci. The diagnosis is confirmed if at least two of the following three are present: 1) vaginal pH > 5: 2) positive "whiff test" with KOH preparation: 3) presence of clue cells on a wet mount. Oral metronidazole is the preferred treatment.

143. A 32-year-old man had a right radical orchiectomy for pure seminoma, Stage I. The left testis had been removed at age 14 following a torsion. Two weeks after orchiectomy, his previously normal beta -hCG is elevated. The alpha-fetoprotein, chest X-ray, and abdominal CT scan remain normal. The next step is:
A. combination chemotherapy.
B. retroperitoneal lymphadenectomy.
C. radiotherapy and repeat serum markers in one month.
D. radiotherapy, exogenous testosterone, and repeat markers.
E. extended radiotherapy to mediastinum and supraclavicular nodes.
ANSWER=D
Removal of both testes will cause increased pituitary gonadotropin secretion, reflected by the elevated hCG. Giving intramuscular testosterone cypionate, 200 mg every two weeks, should suppress pituitary gonadotropin secretion and return the serum hCG to normal within two to three weeks. If hCG elevations persist, radiotherapy to periaortic nodes results in a 98% disease-free rate. If rising hCG is noted after radiotherapy, it would probably best be treated by combination chemotherapy.

144. A newborn boy has a large, firm, left flank mass palpated on routine physical examination. An ultrasound shows a solid renal mass. The most likely diagnosis is:
A. neuroblastoma,
B. mesoblastic nephroma,
C. hemorrhage into a hydronephrotic kidney,
D. mesonephric hamartoma.
E. Wilms' tumor.
ANSWER=B
Mesoblastic nephroma, an infiltrating solid renal tumor made up of spindle cells and grossly resembling a uterine fibroid, is the most common renal tumor of infancy. If completely excised, the patient is uniformly cured.

145. A 60-year-old alcoholic man is in the emergency room with a blistering, severe cellulitis of the scrotum and penis. He denies trauma or pain, and there is no tenderness of the wound. He has a low-grade fever and an elevated WBC count. Management should include parenteral antibiotics and:
A. urethral catheter drainage,
B. incision and drainage,
C. suprapubic cystostomy.
D. scrotal exploration,
E. operative debridement.
ANSWER=E
This is a clinical picture of necrotizing fasciitis (Fournier s gangrene) that is commonly seen in alcoholics, diabetes, the morbidly obese and other chronically immunosuppressed individuals. The lesions are usually painless because deep nerve damage occurs with inflammation and necrosis. Treatment includes broad antimicrobial coverage for aerobic and anaerobic organisms with drainage and debridement

146. A 64-year-old man has painless right testicular swelling of three months duration. Urinalysis is normal, and testicular ultrasound reveals an enlarged right testis with multiple hypoechoic lesions. The most likely diagnosis is:
A. lymphoma.
B. chronic lymphocytic leukemia,
C. spermatocytic seminoma,
D. teratocarcinoma.
E. embryonal cell carcinoma.
ANSWER=A
Lymphoma accounts for about 5% of all testicular tumors. It is the most common of all testis tumors over the age of 50. The median age of occurrence is approximately 60 years. Lymphoma is the most common secondary neoplasm of the testis. Microscopically, all varieties of reticuloendothelial neoplasms, including Hodgkin's disease, have been described in the testis. The vast majority, however, are diffuse; of these, most are histiocytic.

147. A 14-year-old girl has gross hematuria. She is thin, chronically ill, and has an erythematous rash on her face and tongue. Radiologic studies show bilateral renal masses. Percutaneous needle biopsy shows both renal cell carcinoma and hamartoma. She most likely has:
A. neurofibromatosis.

B. Sturge-Weber syndrome,
C. von Hippel-Lindau disease,
D. tuberous sclerosis,
E. sarcoidosis.
ANSWER=D
Neurocutaneous syndromes are hereditary disorders characterized by tumors in multiple organs. This history and exam are typical of tuberous sclerosis. Hamartomas occur in neurofibromatosis and tuberous sclerosis. Renal cell carcinoma occurs in von Hippel-Lindau disease and tuberous sclerosis. The occurrence of both tumors in the same patient is most typical of tuberous sclerosis.

148. A 32-year-old woman with recurrent calcium renal stones has a serum calcium of 9.9 mg/dl and bicarbonate of 15 mEq/l. Her serum parathyroid hormone is at the upper normal level. Her fasting urinary pH is 6.0, and the fasting calcium/creatinine ratio is elevated. A 24-hour urinary calcium on a random diet is 350 mg. The most likely diagnosis is:
A. absorptive hypercalciuria.
B. renal hypercalciuria.
C. primary hyperparathyroidism.
D. RTA Type I.
E. RTA Type II.
ANSWER=D
This woman has metabolic acidosis as evidenced by the decreased serum bicarbonate and an inappropriately high urine pH. In the presence of acidosis; patients with distal renal tubular acidosis (Type I) are unable to acidify urine below a pH of 5.5. Thus the diagnosis of complete distal renal tubular acidosis can be made in this patient by the presence of metabolic acidosis and an inappropriately basic urine. A patient with Type 11 (proximal) renal tubular acidosis will acidify urine below a pH of 5.5 in the presence of metabolic acidosis. The low serum bicarbonate and low-normal serum calcium are not characteristic of normocalcemic hyperparathyroidism. Absorptive or renal hypercalciuria; likewise; are not associated with systemic metabolic acidosis.

149. A 27-year-old man has bulky retroperitoneal adenopathy following radical orchiectomy for a mixed germ cell tumor. His chest X-ray is normal. Serum beta-hCG and AFP are markedly elevated. Liver enzymes are slightly elevated and the patient relates a history of ethanol excess. He receives three cycles of BEP. Restaging reveals a 3 cm retroperitoneal mass, a normal chest X-ray, and normal serum beta-hCG. However the serum AFP is 20 lU/ml (normal=0-9). The next step is:
A. retroperitoneal lymph node dissection.
B. CT-guided needle biopsy,
C. salvage chemotherapy,
D. serial markers and CT scans,
E. external beam radiotherapy.
ANSWER=A
This patient presents with a residual bulky mass after three courses of platinum based chemotherapy. While the chest X-ray and beta-hCG are normal the serum AFP remains slightly elevated. AFP production is generally attributed to yolk sac elements in a mixed germ cell tumor. It is also seen with a number of other conditions such as hepatocellular carcinomas and benign hepatic disease, including alcohol hepatitis, as is probable in this case While patients with persistent marker elevations after chemotherapy are generally considered very likely to harbor residual carcinoma and probably best managed by further chemotherapy, the AFP elevation seen in this case is more likely due to benign liver disease. Consequently, this patient would be best managed by retroperitoneal lymph node dissection. The most likely finding at retroperitoneal lymph node dissection would be either fibrosis or residual teratoma. CT scan directed percutaneous needle biopsy would have considerable sampling error and external beam radiotherapy has no efficacy, particularly in the management of teratoma. Further observation is generally not warranted in patients that have residual retroperitoneal masses in excess of 2-3 cm.

150. A 12-year-old boy has intermittent right scrotal pain for two weeks after being kicked in the groin. Both physical examination of the scrotal contents and urinalysis during an episode of pain are normal. Doppler ultrasound of the testis demonstrates normal flow, and a 5 mm subtunical cystic lesion in the lower pole of the right testis without internal echoes or calcification. The next step is:
A. radical orchiectomy.
B. scrotal exploration and biopsy of the lower pole lesion,
C. repeat physical examination and urinalysis in three months,
D. repeat ultrasound in three months,
E. bilateral orchiopexy.
ANSWER=D
The questions for this peripubertal boy with intermittent testicular pain are whether he has intermittent torsion and whether the lesion in the testis requires excision With a normal physical examination: i e , no horizontal lie to the testis, it is difficult to diagnose intermittent torsion especially since the problem has been evident for only two weeks. The lesion in the right testis is clearly a cyst by ultrasound and treatment for this would be observation with follow-up ultrasound in three months. True simple cysts of the testis are usually non-palpable, usually subtunical near the mediastinum of the testis, and rarely change on follow-up ultrasound. Complex cysts or cysts with calcification tend to be more associated with malignancy and require more aggressive management.

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1. Secretion of aldosterone is primarily mediated by:
A. ACTH.
B. renin.
C. serum potassium level.
D. sodium concentration in the proximal tubule.
E. sodium concentration in the collecting duct.
ANSWER=B
ACTH and serum potassium may increase aldosterone secretion but the effect is much less pronounced than that achieved by renin. The primary mechanism for control of aldosterone production resides in a feedback system involving the kidney and its juxtaglomerular apparatus. In the presence of appropriate stimuli (i.e., decreased renal perfusion pressure) juxtaglomerular cells release renin which eventuates in the production of angiotensin II. Angiotensin II is a potent stimulator of aldosterone output from the zona glomerulosa of the adrenal cortex.

2. The drug that blocks peripheral androgen action during chronic administration is:
A. ketoconazole.
B. alcohol.
C. cimetidine.
D. marijuana.
E. leuprolide.
ANSWER=C
Cimetidine {Tagamet) is an androgen antagonist that may cause gynecomastia and decreased sperm density. Ketoconazole interferes with normal steroidogenesis whereas alcohol, marijuana, and methadone may cause suppression of testosterone synthesis. This may be useful as a part of the history of the infertile patient.

3. In women with invasive carcinoma of the proximal urethra, the primary lymphatic site for metastatic disease is:
A. superficial inguinal.
B. deep inguinal.
C. external iliac.
D. hypogastric.
E. obturator.
ANSWER=C
The anterior (distal) urethra and labia drain to the superficial and then deep inguinal nodes, while the posterior (proximal) urethra drains primarily to the external iliac, and then secondarily to the hypogastric and obturator lymph nodes.

4. The effect of finasteride on serum and intraprostatic testosterone is:

	Serum Testosterone	Intraprostatic Testosterone
A	↑	↑
B.	↔	↔
C.	↓	↓
D.	↑	↓
E.	↔	↑

ANSWER=A
There are two isoenzymes of 5-alpha-reductase (Type I and Type II). Finasteride blocks only the Type II isoenzyme. The prostate and skin contain the Type II enzyme. Therefore, DHT levels are decreased in the prostate. There is an upregulation of serum and intraprostatic testosterone. The serum DHT is typically decreased by about 85% but not to castrate levels.

5. A 48-year-old man and his 44-year-old wife wish to have another child. Fifteen years previously he had a vasectomy and four years ago he failed vasectomy reversal. No sperm were found in the vas at the time of surgery. The wife's menses are regular. The best chance for pregnancy is:
A. open epididymal aspiration with IVF and intracytoplasmic sperm injection.
B. needle aspiration of the testicle with IVF and intracytoplasmic sperm injection.
C. gynecologic evaluation of wife then bilateral vasoepididymostomy if her evaluation is normal.
D. donor eggs and needle aspiration of the testicle with IVF and intracytoplasmic sperm injection.
E. re-do microscopic two-layer vasovasostomy.
ANSWER=D
Results of standard IVF without intracytoplasmic sperm injection are extremely poor in women over age 40. With donor eggs the pregnancy rate is over 30%. The overall rate of pregnancy after vasoepididymostomy is 30-50% but is dramatically lower with a wife of age 40.

6. A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass on CT scan. The mass measures -40 Hounsfield units. The next step is:
A. no treatment.
B. MRI scan.
C. 24-hour urine for metanephrines.
D. dexamethasone suppression test.
E. right adrenalectomy.
ANSWER=A
A mass with Hounsfield units between -30 and -140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required.

7. Reflex bladder and urethral activity are coordinated by a reflex center located in the:
A. sacral cord.
B. thoracic and sacral cord.
C. pons.
D. medulla.
E. basal ganglia.
ANSWER=C
The center for integration and coordination of bladder and urethral activity is in the pons based on minimal electrophysiology studies and lesioning or PET scans in the human. The sacral cord and thoracic cord, left to themselves after spinal cord injury, exhibit disorganized, antagonistic, poorly sequenced activity. The nucleus ceruleus is near the center but not itself involved, and the basal ganglia and medulla seem to be involved in modulation of detrusor activity and perhaps in facilitation of detrusor contractility but not integration of bladder and urethral response.

8. A 34-year-old man requests repair of his left-sided varicocele. Microsurgical varicocelectomy will likely result in:
A. increased testicular volume.
B. no change in testicular volume.
C. increased semen fructose.
D. increased ejaculate volume.
E. decreased semen pH.
ANSWER=B
Microsurgical varicocelectomy has been performed in hopes of increasing the fertility status of men. There is an association between testicular atrophy and ipsilateral varicoceles. Varicocele repair in adolescents has been associated with catch-up testicular growth. In adults however, there is no change in testicular volume when studied with ultrasonography. Varicocelectomy will not change libido, ejaculate volume or pH, or semen fructose levels.

9. The advantage of a non-refluxing ureterointestinal anastomosis is that it decreases:
A. upper tract colonization.
B. ureterointestinal stricture.
C. pressure transmission to the upper urinary tract.
D. metabolic abnormalities.
E. stone formation.
ANSWER=C
Non-refluxing ureterointestinal anastomoses do not prevent upper tract colonization. In one study where needle aspirations of upper urinary tracts above functioning non-refluxing anastomoses were performed, virtually all upper tract systems were colonized. Studies which have compared non-refluxing colon conduits to refluxing ileal conduits have also shown similar rates of upper tract deterioration. While a properly functioning, non-refluxing ureteral anastomosis does prevent pressure transmission to the upper urinary tract this benefit is in part offset by a higher incidence of ureterointestinal stricture. This has caused some to question the benefit of creating non-refluxing anastomoses in any form of urinary diversion whether conduit or continent.

10. During bladder filling, intraluminal ureteral pressure:

A. increases, and the frequency of contractions increase.
B. increases, and the frequency of contractions decrease.
C. increases, and the frequency of contractions is unchanged.
D. decreases once the frequency of contractions decrease.
E. remains stable while ureteral contractions decrease.
ANSWER=A
As the bladder fills, resting pressure within the intravesical ureter increases. This results in an increased intraluminal (ureteral) pressure and an increase in the frequency of ureteral contractions. The end result is continued excretion of urine into the filling bladder.

11. A 45-year-old man with multiple bilateral renal masses and a family history of renal and cerebellar tumors is likely to have:
A. unilateral absence of the vas deferens.
B. bilateral absence of the vas deferens.
C. aplasia of the seminal vesicles.
D. epididymal cysts.
E. epididymal agenesis.
ANSWER=D
The patient has von Hippel-Lindau disease, which is associated with bilateral renal cysts and tumors, cerebellar hemangiomas, and epididymal cysts.

12. Five years after a radical cystectomy and ileal conduit for bladder cancer, a 65-year-old man has a serum creatinine of 2.5 mg/di, BUN 40 mg/di, sodium 146mEq/I, potassium 4.6mEq/I, and bicarbonate 16mEq/1. A loopogram shows a 35 cm long moderately dilated conduit with reflux into dilated upper tracts. The most appropriate treatment is:
A. sodium bicarbonate orally.
B. balanced citrate solution orally.
C. conversion to a non-refluxing colon conduit.
D. revision of conduit length and stoma.
E. revision of ureteroileal anastomoses.
ANSWER=D
Despite improvement in surgical techniques, stomal stenosis is still the most likely cause of the elongated dilated conduit with hydronephrosis and hyperchloremic acidosis. Therefore, the most appropriate treatment is revision of the stoma and shortening of the conduit. Administration of electrolytes is symptomatic treatment only. Because there is no obstruction at the site of the ureteroileal anastomosis, reimplantation is not indicated. Conversion to a nonrefluxing colon conduit is not required in this setting where a simpler procedure - shortening of the ileal conduit and stomal stenosis - will suffice.

13. The condition that leads to a decrease in circulating blood volume is:
A. reduced renal arterial pressure.
B. angiotensin II excess.
C. catecholamine excess.
D. hepatic venous congestion.
E. hyperaldosteronism.
ANSWER=C
Increased renin with increased aldosterone will lead to an increase in circulatory blood volume. In hepatic venous congestion, aldosterone metabolism is diminished. Adrenal cortical adenoma causes mineralocorticoid excess and increased blood volume. Of all the conditions cited, only catecholamine excess, such as one might see in a patient with pheochromocytoma, is known to be associated with a decreased blood volume. This is the reason that preoperative volume expansion is important in patients with pheochromocytoma.

14. A 55-year-old woman recovering from an exacerbation of her multiple sclerosis develops an acute UTI while on clean intermittent catheterization. The agent to avoid in treating this infection is:
A. trimethoprim-sulfamethoxazole.
B. nitrofurantoin.
C. cephalexin.
D. ampicillin.
E. ciprofloxacin.
ANSWER=B
Nitrofurantoin has been reported to cause severe and irreversible peripheral neuropathy. This may be more likely in debilitated, diabetic, or Vitamin B deficient patients. For this reason, unless there are no other drugs that can be used,

15. A 55-year-old woman undergoes a radical cystectomy and Indiana pouch. One year later, she has leakage between catheterizations, which she performs every three hours. Urodynamics reveals a pouch capacity of 200 ml and contractions to 55 cm H2O which are associated with leakage. The next step is:
A. oral oxybutinin.
B. oral metoclopramide.
C. pouch irrigations with oxybutinin.
D. pouch augmentation.
E. creation of intussucepted nipple valve.
ANSWER=D
The clinical scenario is of a small capacity pouch which leaks due to contractions of the pouch. This problem would be best served with an augmentation of small bowel. Reinforcement of the continence mechanism does not address the basis for incontinence. Incontinence associated with pouchitis is found in association with physical signs (tenderness over pouch, low grade fevers).

16. Administration of IV mannitol prior to renal artery occlusion for partial nephrectomy helps prevent tissue damage by:
A. increasing cellular pH.
B. preventing cellular edema.
C. inhibition of Na/K ATPase.
D. preventing lactic acidosis.
E. limiting intracellular calcium influx.
ANSWER=B
Renal ischemia may cause cell damage by depleting energy stores (ATP) and decreasing activity of active transport via Na+/K + and Ca++/Mg++ ATPases. As a result, intracellular influx of Na+, Ca++, Cl- and water occur. The influx of water causes cellular swelling. The use of solutions containing impermeable solutes, such as mannitol, help reduce cellular edema. Additionally, mannitol infusion results in improved renal hemodynamics and an osmotic diuresis.

17. During the course of a radical cystectomy, a rectal injury is primarily repaired. Three days postoperatively, the patient becomes septic. Physical examination reveals a tender surgical wound. The adjacent skin is edematous and has a bronze discoloration. Gram strain of the wound aspirate reveals gram-positive, club-shaped organisms. The next steps are surgical drainage and:
A. penicillin.
B. gentamicin.
C. fluconazole.
D. metronidazole.
E. tetracycline.
ANSWER=A
The findings described are characteristic of clostridial wound infection. Clostridial infections should be considered in any patient with a wound infection, especially if there has been an injury to the colon. The organism is an anaerobe with a positive gram stain and a club shape. Clinically, the patient appears very toxic and a bronze discoloration of the involved skin is very characteristic. Crepitus may be absent. High doses of intravenous penicillin would be the antibiotic treatment of choice.

18. A 60-year-old man is undergoing a radical cystectomy for a 3 cm invasive bladder cancer at the dome, with a planned continent neobladder diversion. At surgery the pelvic lymph nodes reveal microscopic metastatic cancer on frozen section. The next step is:
A. abort procedure; follow with systemic chemotherapy.
B. cystectomy and ileal conduit.
C. cystectomy and neobladder if apical margins are negative.
D. abort the procedure; perform an ileal conduit diversion only.
E. perform partial cystectomy and follow with chemoradiation.
ANSWER=C
The presence of nodal metastases is not a contraindication for continent orthotopic diversion, if that is the patient's preference. Although the majority of patients with positive nodes go on to die of

their disease, most have distant rather than local recurrence, and do not develop problems with the diversion from the cancer itself.

19. Bicarbonate (HCO3) is reclaimed from the glomerular filtrate primarily by proximal tubular:
A. hydrogen ion secretion.
B. HCO3 - active transport.
C. sodium excretion.
D. potassium excretion.
E. water reabsorption.
ANSWER=A
Approximately 80% of filtered bicarbonate is reclaimed by the proximal tubule. Hydrogen secretion by the proximal tubule is coupled to sodium reabsorption. The secreted hydrogen ion combines with filtered bicarbonate to form H2CO3. Carbonic anhydrase then catalyzes the dehydration of luminal H2CO3 to CO2 and water. The CO2 diffuses back into the cell where it may be hydrated to form additional H2C03. The HCO3 - generated within the cell - diffuses into peritubular blood. There is no active transport of bicarbonate in the nephron.

20. A 35-year-old, insulin-dependent, diabetic woman with a normal serum creatinine is treated with ampicillin for acute right pyelonephritis. Additional medications include propranolol, acetaminophen, and diazepam. On the seventh day of treatment, her temperature increases to 103° F, and she develops a generalized pruritic skin rash. Her WBC count is 9500/cu mm with 8% eosinophils. Urinalysis reveals RBC casts, 3+ proteinuria, and no bacteria. The serum creatinine is now 3.4 mg/di. The blood sugar is 150 mg/di. The change in this patient's clinical condition is most likely related to:
A. insulin.
B. diazepam.
C. ampicillin.
D. propranolol.
E. acetaminophen.
ANSWER=C
Acute interstitial nephritis due to penicillins may occur five days to five weeks after initiating the drug. Oliguria is unusual. The disease is not dose-dependent. Cross-sensitivity does exist, for example, administration of ampicillin to a patient who had developed interstitial nephritis with methicillin will precipitate a recurrence.

21. A 57-year-old man has high drain output seven days following radical cystectomy and orthotopic urinary diversion. His serum creatinine is 1.5 mg/di, and his urine output remains good via his indwelling Foley catheter. The drain fluid reveals a creatinine of 1.6 mg/di. The next step is:
A. observation.
B. replace Foley catheter.
C. suprapubic tube placement.
D. bilateral percutaneous nephrostomies.
E. exploration with repair of leak.
ANSWER=A
Despite the high drain output, there is no evidence of urinary leakage and the high drainage is likely due to intraperitoneal fluid. In the absence of an clinical finding suggestive of urinary leakage such as low urine output, high serum creatinine or elevated creatinine levels in the fluid, observation with conservative management is prudent. Accordingly, there is no indication for intervention in this patient at this particular time. If clinical suspicion is high despite this, a contrasted study such as a CT scan with contrast IV contrast, an IVP or cystogram could be obtained.

22. The most common acid-base disturbance that occurs in a patient with an ileal conduit urinary diversion is:
A. hyperkalemic; hyperchloremic; metabolic acidosis.
B. hyponatremic; hypochloremic; metabolic acidosis.
C. hypochloremic; hypokalemic; metabolic alkalosis.
D. hypokalemic; hyperchloremic; metabolic acidosis.
E. hyponatremic; hypochloremic; metabolic alkalosis.
ANSWER=D
In the setting of an ileal conduit urinary diversion, ammonium absorption occurs with chloride in exchange for hydrogen and bicarbonate ions, and may be accompanied by renal potassium wasting. This results in a hypokalemic hyperchloremic metabolic acidosis. Hyponatremic hypochloremic hyperkalemic metabolic acidosis occurs with the use of jejunum due to sodium chloride loss with increased reabsorption of potassium and hydrogen ions. Use of stomach may lead to hypochloremic hypokalemic metabolic alkalosis due to hydrogen and chloride loss with renal oversecretion of potassium to compensate for proton loss.

23. A 48-year-old man with genitourinary tuberculosis has a 4 cm distal ureteral stricture. He is treated with ureteral stent placement and pyrazinamide, isoniazid, and rifampin. After six weeks of treatment, no improvement in the extent or length of the ureteral stricture is noted. The next step is:
A. prednisone.
B. observation.
C. ureteroneocystostomy.
D. add streptomycin.
E. psoas hitch.
ANSWER=A
The most common site of ureteral stricture disease in patients with genitourinary tuberculosis is the distal ureter, occurring in approximately 9% of cases. Obstruction may respond to antituberculous therapy alone. However, if improvement is not noted within three weeks, prednisone (20 mg tid) should be added. If this fails, reimplantation should be considered for short strictures (< 5 cm) and either a Boari flap or psoas hitch repair for longer strictures. Endourologic management of the stricture can also be considered for shorter strictures.

24. A 58-year-old woman underwent cystectomy and Kock cutaneous urinary reservoir 12 years previously. She is having difficulty catheterizing and persistent urinary infections. A pouchogram shows a 4 cm stone overlying the efferent limb of the pouch, and an IVP shows normal upper tracts. The next step is:
A. SWL.
B. endoscopic lithotripsy via the stoma.
C. percutaneous endoscopic lithotripsy.
D. open stone extraction.
E. pouch irrigation with Renacidin.
ANSWER=D
Kock pouch stones are a common late complication, and usually form on the surgical staples used to fix the nipple valves. SWL has no place in the treatment of pouch stones. Endoscopic management, either via the stoma or a percutaneous tract, is appropriate for smaller stones, especially those that are free-floating or on the afferent limb. A stone on the efferent limb will often be stuck on staples behind the nipple valve, and may also have formed on Marlex mesh which was often used to stabilize the nipple valves. It would be very difficult to break up endoscopically. Open stone removal is very quick and effective, and can also address the underlying cause of the stone.

25. Duloxetine is useful for incontinence because it:
A. decreases detrusor activity.
B. increases neural activity of the intrinsic urethral sphincter.
C. increases neural activity of the external urethral sphincter.
D. increases neural activity of the external urethral sphincter and decreases detrusor activity.
E. increases neural activity of the intrinsic urethral sphincter and decreases detrusor activity.
ANSWER=D
Duloxetine, a combined norepinephrine and 5-HT reuptake inhibitor has been shown, in an animal model of bladder irritation to increase the neural activity of both the urethral sphincter and the bladder. Duloxetine appears to have effects on both the bladder and external sphincter and has been proposed as a treatment for both stress and urge incontinence. Duloxetine increases the neural activity to the EUS and decreases bladder activity through effects on the central nervous system.

26. The most common cause of catheter-associated urinary tract infection is:
A. improper catheterization technique.
B. urethral meatal bacteria.
C. break in the drainage system.
D. urinary drainage bag bacteria.
E. bacterial antimicrobial resistance.

ANSWER=B
Urethral meatal bacteria are the most frequent source of catheter-associated urinary tract infection. Unfortunately, topical urethral meatal antimicrobial agents do not prevent urinary tract infections and frequently cause overgrowth of resistant bacteria. Improper catheterization techniques, breaks in the system, and contamination of the drainage bag are less frequent but preventable causes of catheter-associated infection. Antimicrobials allow growth of resistant bacteria that are more difficult to treat but not more likely to cause infection.

27. A 54-year-old man with prostate cancer has skeletal metastases. Three months after beginning LH-RH agonist therapy, his PSA is undetectable. The likelihood of developing further bone pathology is best reduced with which of the following:
A. finasteride.
B. Vitamin E and selenium.
C. biclutamide.
D. estramustine.
E. zoledronic acid.
ANSWER=E
Use of bisphosphonate therapy in men with prostate cancer has demonstrated two outcomes: prevention of osteoporosis and reduction of skeletal-related events. Monthly intravenous zoledronic acid reduces analgesic use and the time to a skeletal event compared to placebo. However, these changes do not influence survival.

28. Nocturia associated with obstructive sleep apnea is caused by:
A. increased cortisol.
B. increased atrial natriuretic peptide.
C. decreased arginine vasopressin
D. decreased angiotensin II.
E. increased antidiuretic hormone.
ANSWER=B
Respiratory disease associated with increased airway resistance, such as obstructive sleep apnea, is associated with increased renal sodium and water excretion mediated by plasma atrial natriuretic peptide (ANP) levels. The mechanism for elevated ANP release associated with obstructive sleep apnea is caused by increased right atrial transmural pressure resulting from hypoxia-induced pulmonary vasoconstriction. ANP release stimulates natriuresis by increased glomerular filtration rate and action on the inner medullary collecting duct. Other effects include renal blood vessel vasodilatory effects and suppression of renin secretion.

29. A 31-year-old woman has acute cystitis. The most appropriate treatment is three days of:
A. Fosfomycin
B. nitrofurantoin.
C. ampicillin.
D. cefazolin.
E. trimethoprim-sulfamethoxazole.
ANSWER=E
Practice guidelines from the Infectious Disease Society of America suggests that three days of antibiotics is optimal therapy except for nitrofurantoin which requires seven days therapy to be equal to other antibiotics. Beta-lactams are less effective in community-acquired organisms with resistance as significant as 50% in some communities. Acute uncomplicated bacterial cystitis in healthy adult non-pregnant women is best approached with TMP-SMX since approximately 80% of E. coli are sensitive to this regimen. Oral fluoroquinolones may also be used for three days. Fosfomycin (Monurol) is a single dose therapy.

30. A 64-year-old man has persistent cutaneous urinary drainage of 300-400 ml per day four weeks following cystectomy and ileal conduit. An IVP shows urinary extravasation at the site of the right ureteroileal anastomosis. The best management is:
A. revision of ureteroileal anastomosis.
B. percutaneous placement of a nephroureteroileal stent.
C. catheter drainage of the conduit.
D. looposcopy and retrograde stent placement.
E. observation.
ANSWER=B
If possible, a percutaneous nephrostomy with placement of a stent across the fistula is the best management, since a percutaneous nephrostomy alone will not usually divert the urine completely. If this is not possible, exploration and operative repair may be necessary. Looposcopy might further disrupt the anastomosis and chances of passing a stent retrograde are slim.

31. A 36-year-old woman with cerebral palsy develops urgency incontinence with severe perinea! skin ulceration. Urodynamics show a 200-cc capacity bladder with uninhibited contractions. Abdominal leak point pressure is 110 cm water. She has failed anticholinergics. Due to her body habitus, clean intermittent catheterization is not possible. The best management is:
A. detrusor myomectomy.
B. ileal conduit.
C. Indiana pouch.
D. bladder augmentation with catheterizable abdominal stoma.
E. bladder augmentation with fascial sling.
ANSWER=D
Bladder augmentation represents the best solution to this complex problem; however, this can commit the patient to clean intermittent catheterization. This is not possible for this patient. In selected circumstances such as this, a continent catheterizable abdominal stoma is a useful option. The urethral sphincter is intact in this patient as evidenced by a very high abdominal leak pressure.

32. Which drug may result in a false positive screening test for urinary opiates:
A. ampicillin.
B. cephalexin.
C. trimethoprim.
D. levofloxacin.
E. nitrofurantoin.
ANSWER=D
Urinary drug screening is now routinely performed in a number of settings. It is important to recognize that certain types of antibiotic therapy may result in false positive urinary opiate testing. Several types of quinolone agents including levofloxacin, ofloxacin, ciprofloxacin, norfloxacin, trovafloxacin, enoxacin, and nalidixic acid have this property. Rifampin therapy and poppy seed ingestion have also been reported to result in false positive urinary opiate testing.

33. A 33-year-old woman develops gross hematuria requiring multiple transfusions four weeks after a percutaneous nephrolithotomy. The next step is:
A. observation.
B. renal arteriogram.
C. CT scan.
D. exploration and repair.
E. nephrectomy.
ANSWER=B
The most likely diagnosis is an AV fistula or a false aneurysm. Renal arteriography should be performed and an embolization procedure can be undertaken if one of the aforementioned lesions are identified.

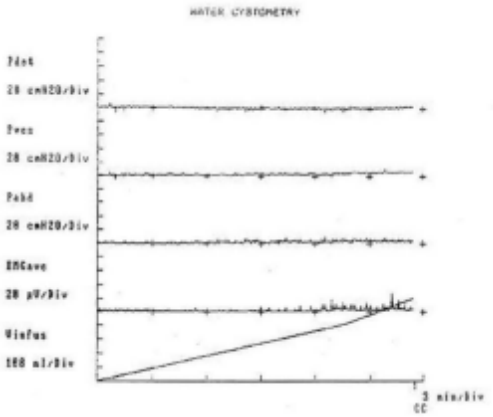
34. During a Burch colposuspension, lateral suture placement into Cooper's ligament may injure the:
A. femoral nerve.
B. femoral artery.
C. femoral vein.
D. obturator nerve.
E. pudenda! nerve.
ANSWER=C
Burch colposuspension is a relatively durable procedure for correction of incontinence secondary to urethral hypermobility. The potential complications of this procedure include opening the bladder neck causing worsening of incontinence, placement of vaginal suture distal to the bladder neck causing urethral kinking with obstruction, and creation of an enterocele. In addition, superior placement of sutures can result in a kinking of ureters causing bilateral ureteral obstruction. One major risk can occur during placement of the lateral sutures into Cooper's ligament, injuring the femoral vein. This is managed by compression and then tying the suture.

35. A 22-year-old woman with recurrent febrile E. coli UTls wants to become pregnant. IVP shows a normal left kidney and an atrophic, scarred right kidney with less than 5% function on a DMSA scan. VCUG shows no reflux. The next step is:
A. indium-labeled WBC scan.
B. preventive antimicrobial therapy.
C. bilateral ureteral catheterization with cultures.
D. fluorescent bacterial antibody testing.
E. right nephrectomy.
ANSWER=C
It must be decided whether this woman has recurrent E. coli infections or a persistent source of infection. One of the causes of surgically correctable bacterial persistence in the urinary tract is a unilateral infected atrophic kidney. To prove that this woman has bacterial persistence, however, upper tract bacterial localization cultures with bilateral ureteral catheterization need to be performed before nephrectomy is considered to treat her infections. If the kidney is not infected, these infections are the result of frequent E. coli reinfections in which case a right nephrectomy would not be helpful in treating her.

36. A 67-year-old man has a rectoprostatic fistula one year after interstitial and external beam radiation for localized prostatic cancer. An initial fulguration failed and three months ago, he had a proximal colostomy. He continues to have urine leakage per rectum and recurrent urinary infections. Biopsy of the prostate shows no cancer and serum PSA is 0.3 ng/ml. The best treatment is:
A. suprapubic cystotomy.
B. transabdominal repair.
C. urinary diversion.
D. salvage prostatectomy.
E. posterior transanal repair.
ANSWER=E
A prostatorectal fistula is relatively low in the pelvis and is best managed by the posteriortransanal repair (York-Mason) approach, in which the posterior anal sphincter is split to provide good exposure of the anterior rectal wall. The fistula site can then be excised with a multilayer closure. A transabdominal repair is difficult in this setting due the location deep within the pelvis, and this type of fistula is better repaired through the posterior, transanal approach. A urinary diversion may need to be considered, but only if attempts for primary repair have failed. This patient's PSA is <0.5 and he is likely to stay cancer free, so salvage prostatectomy should not be considered.

37. Trimethoprim, nitrofurantoin, and cephalexin are effective for the prevention of frequent urinary reinfections in adult women when administered in chronic low dosage because each is:
A. concentrated in the urine.
B. concentrated in the vaginal fluid .
C. completely absorbed in the upper gastrointestinal tract.
D. capable of reducing fecal uropathogens.
E. associated with no significant side effects during long term administration.
ANSWER=B
This patient has urgency incontinence secondary to detrusor instability, as indicated by the random nature of the incontinence. A cystometrogram will fail to demonstrate involuntary bladder contractions in approximately 50% of patients with clinical urgency incontinence. Detrusor hyperreflexia implies the presence of involuntary bladder contractions in the face of neurological disease. This patient is neurologically normal therefore detrusor hyperreflexia is not the cause of her incontinence. Overflow incontinence is not the cause in this case as the post-void residual is low. The primary cause of the incontinence is not stress (increase in abdominal pressure) related, particularly not intrinsic sphincter deficiency, since urinary leakage did not occur during

38. A 70-year-old neurologically normal woman has random, large volume urinary incontinence. Medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and postvoid residual is 40 ml. The filling CMG is shown (see figure). No urinary leakage is noted with Valsalva maneuver. The most likely cause of her incontinence is:
A. overflow.
B. detrusor instability.
C. detrusor hyperactivity with impaired contractility.
D. intrinsic sphincter deficiency.
E. vesicovaginal fistula.



ANSWER=A
Each of the three agents is concentrated in the urine so that efficacy is maintained despite dose-administration reductions. Only trimethoprim is concentrated in the vaginal fluid, and trimethoprim is not completely absorbed in the upper gastrointestinal tract. Only trimethoprim reduces the mass of urinary pathogens in the fecal flora. Nitrofurantoin is associated with the long-term side effect of pulmonary fibrosis.

39. A 65-year-old woman has vaginal leakage of urine three years after radiation for cervical carcinoma. IVP reveals normal upper urinary tracts, and a methylene blue test confirms the presence of a vesicovaginal fistula. The next step is:
A. suprapubic tube.
B. fulguration of fistula.
C. biopsy of fistula.
D. vaginal repair with labial fat flap.
E. transabdominal repair with omental flap.
ANSWER=C
Recurrent carcinoma should be suspected in any patient with delayed vesicovaginal fistula formation, even with prior radiation therapy, following management of a pelvic malignancy. CT scan or MRI scan may detect massive pelvic disease but biopsy of the fistula tract is mandatory to rule out carcinoma as the primary cause of the fistula.

40. A patient has stress urinary incontinence one year after radical retropubic prostatectomy. However, stress incontinence observed on physical examination is not documented during an abdominal leak point pressure determination under fluoroscopy. The test was performed using a 12 Fr urethral catheter at a volume of 200 cc. The most likely explanation for the false negative leak point pressure is:
A. insufficient volume instilled.
B. urethral catheter is too large.
C. involuntary bladder contraction.
D. poor Valsalva effort.
E. impaired contractility.
ANSWER=B
With a stricture of the urethra or a bladder neck contracture using a catheter as small as 9 Fr may not allow urine to exit around its diameter. Using a rectal pressure as an estimate of intraabdominal pressure or use of a suprapubic catheter represent alternative methods. More simply, a smaller diameter catheter such as 7 Fr or less can be used.

41. A 33-year-old man has active genitourinary tuberculosis. His community has a 12% incidence of INH-resistant Mycobacterium. The best initial treatment is INH and:
A. rifampin.
B. rifampin, pyrazinamide.
C. rifampin, pyrazinamide, ethambutol.
D. rifampin, streptomycin.
E. pyrazinamide, streptomycin.
ANSWER=C
The best initial treatment of GU TB is triple drug treatment for two months followed by two drugs for four months. The best combination is INH, rifampin, and pyrazinamide. If the INH

resistance is above 4% in the patient's community, addition of ethambutol or streptomycin to the three drugs is advised

42. A 14-year-old boy involved in an MVA has an injury to the conus medullaris. His neurologic examination will reveal:

Bulbocavernosus reflex-**Deep** tendon reflexes-**Skin** sensation of genitalia

A. absent	increased	absent
B. absent	absent	absent
C. absent	absent	normal
D. present	increased	normal
E. present	absent	absent

ANSWER=B

The bulbocavernosus reflex is a local spinal cord reflex arc reflecting S2-4. Absence of the bulbocavernosus reflex indicates sacral nerve damage such as a complete lower motor neuron lesion. Deep tendon reflexes reflect the integrity of upper motor neuron and lower motor neuron function. Lower motor neuron lesions usually result in hypoactive deep tendon reflexes. Sensory deficits at a specific dermatomal level are suggestive of a localized lesion either at the spinal cord or at the nerve root level.

43. An 81-year-old woman with nocturnal enuresis is treated with DDAVP (desmopressin). After ten days of treatment, she develops mental confusion and subsequently has a seizure. The next step is:

A. serum desmopressin level.
B. serum potassium.
C. serum sodium.
D. head CT scan.
E. lumbar puncture.

ANSWER=C

The most common severe side effect associated with the use of DDAVP is water intoxication and hyponatremia. This can lead to mental status changes and seizures. This condition is best detected by measurement of serum electrolytes, particularly sodium. Although a head CT and lumbar puncture are generally useful to evaluate symptoms of mental confusion and seizures, a history of DDAVP use and concomitant hyponatremia would preclude the need for these tests.

44. A 28-year-old woman with asymptomatic bacteriuria is 27 weeks pregnant. A urine culture is positive for E. coli. The most frequent complication of failure to treat bacteriuria is:

A. acute renal failure.
B. premature birth.
C. perinephric abscess.
D. eclampsia of pregnancy.
E. spontaneous abortion.

ANSWER=B

Asymptomatic bacteria occur in 4-7% of women of childbearing age irrespective of pregnancy. The prevalence of bacteriuria increases with parity, age, and lower socio-economic status. Bacteriuria occurs in the first prenatal visit in approximately 75% of women who develop infection during pregnancy. The majority of these infections (75%) occur in the first trimester. 20-40% of patients with bacteriuria early in pregnancy will develop pyelonephritis if untreated and this continued asymptomatic bacteriuria results in premature birth and low birth weight. Quantitative urine cultures must be obtained in all patients at the initial prenatal visit.

45. Non-neurogenic neurogenic bladder is characterized by:

A. high intravesical pressure with poor compliance.
B. detrusor areflexia with detrusor internal sphincter dyssynergia.
C. detrusor areflexia and low urethral closing pressure.
D. uninhibited contractions with detrusor external sphincter dyssynergia.
E. uninhibited contractions with detrusor internal sphincter dyssynergia.

ANSWER=D

Hinman's review of non-neurogenic neurogenic bladder indicates that this entity is an acquired abnormality developing at the time the child learns voiding control. The inability to relax the urethral sphincter in conjunction with elevated intravesical pressures results in an obstructive pattern with all of its adverse effects on renal structure and function.

46. Anticholinergic agents for bladder overactivity would most likely exacerbate which of the following:

A. narrow-angle glaucoma.
B. ulcerative colitis.
C. asthma.
D. myasthenia gravis.
E. hyperhydrosis.

ANSWER=A

Antimuscarinic agents are contraindicated in patients with narrow-angle glaucoma. The medication may exacerbate the impeded drainage of aqueous humor from the anterior chamber of the eye increasing intraocular pressure, which heightens the risk of vision loss.

47. A 69-year-old man with newly diagnosed Stage 0 2 prostate cancer develops significant back discomfort in the L 3-4 area which is a site of known metastases. The quickest method to pharmacologically establish a castrate state is:

A. megestrol acetate.
B. GnRH agonist plus flutamide.
C. ketoconazole.
D. DES.
E. suramin.

ANSWER=C

Within 48 hours, ketoconazole will lower the serum testosterone into the castrate zone. Flutamide, DES, and suramin do not result in a rapid hormonal blockade. GnRH agonists are contraindicated in this patient due to their initial "flare" effect; also with these agents, castrate levels are not reached for a two-week period.

48. While performing a videourodynamic study in a three-year-old child, the recommended rate of bladder filling is:

A. 10 ml/min.
B. 20 ml/min.
C. 30 ml/min.
D. 40 ml/min.
E. 50 ml/min.

ANSWER=A

The rate of bladder filling (ml/min) is calculated by determining the child's predicted bladder capacity (average bladder capacity in ml = age in years + 2 X 30) and dividing the result by 10. In this case, (3+2) X 30 = 150/10 = 15 ml/min or less. It is important not to fill the bladder too fast as it may result in falsely low levels of detrusor compliance and may produce artifactual detrusor contractions. Filling at 10 percent per minute of the calculated bladder capacity (or less) avoids these problems.

49. A 68-year-old man on testosterone replacement for hypogonadism has lower extremity deep venous thrombosis, splenomegaly and a hematocrit of 54. His PSA is 7.5. The most appropriate treatment is to discontinue testosterone, start anticoagulation and:

A. phlebotomize.
B. leuprolide.
C. bicalutamide.
D. perform bone marrow biopsy.
E. perform splenectomy.

ANSWER=A

This patient has significant erythrocytosis (similar to polycythemia vera) caused by testosterone stimulation. The best treatment is immediate phlebotomy with later reduction of testosterone dose. The elevated PSA warrants evaluation, but not urgently.

50. Stress-related cortisol production comes from the:

A. zona glomerulosa.
B. zona fasciculata.
C. zona reticularis.
D. entire adrenal cortex.
E. adrenal medulla.

ANSWER=B

The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

51. An eight-year-old boy with acute lymphocytic leukemia undergoes chemotherapy. His urine output during the last 24

hours is 50 cc. Serum creatinine is 2.1 mg/di, BUN 40 mg/di, and uric acid 8.5 mg/di. Renal ultrasound demonstrates normal sized kidneys with no hydronephrosis and increased echogenicity. The next step is:
A. isotope renogram.
B. renal biopsy.
C. retrograde pyelography.
D. allopurinol.
E. hydration and urinary alkalinization.
ANSWER=E
The patient has tumor lysis syndrome and early acute oliguric renal failure secondary to uric acid nephropathy. The normal ultrasound without hydronephrosis rules out obstruction as the cause of the renal failure. Initial management is hydration, urinary alkalinization and reduction of uric acid with allopurinol. If that fails, hemodialysis may be necessary. The IVP should be avoided due to contrast exposure. Renal biopsy, to rule out interstitial tumor infiltration, is not indicated. The patient is not obstructed and cystoscopy with stent placement is not indicated.

52. A man with impotence secondary to hyperprolactinemia from a small pituitary adenoma does not improve on oral bromocriptine treatment despite normalization of the serum prolactin level. The next step is:
A. CT scan of the sella turcica.
B. parenteral bromocriptine.
C. serum testosterone level.
D. pituitary surgery.
E. parenteral dopamine.
ANSWER=C
Prolactin secretion by the pituitary is under tonic inhibition by the hypothalamic prolactin inhibitory factor, dopamine. Hyperprolactinemia can cause declining libido and impotence. Most hyperprolactinemic men have had large pituitary tumors and hypopituitarism. In patients with small pituitary lesions, bromocriptine treatment alone will normalize serum prolactin levels and allow for spontaneous return of normal testosterone secretion sufficient for restoration of libido and potency in most patients. In many patients with pituitary adenomas, however, serum testosterone secretion did not return to normal with bromocriptine alone and serum testosterone levels remained subnormal. This group of patients will require, in addition to bromocriptine, parenteral testosterone to normalize libido fully and restore potency.

53. Hemorrhage during bilateral total adrenalectomy is more likely to occur on the:
A. left because of multiple veins.
B. right because of multiple veins.
C. left because the main adrenal vein joins the left renal vein.
D. right because the short adrenal vein enters directly into the vena cava.
E. left because of the proximity of the spleen.
ANSWER=D
One major vein drains each adrenal gland. The left adrenal vein enters the renal vein , whereas the right adrenal vein enters directly into the vena cava. The right adrenal vein is short, as well.

54. Which of the following suggest an increased risk of genitourinary abnormality in the neonate:
A. newborn serum creatinine of 1.2 mg/di.
B. maternal insulin-dependent diabetes.
C. maternal hypertension.
D. no urine from infant in first 20 hours.
E. maternal history of multicystic kidney.
ANSWER=B
The neonatal serum creatinine of 1.2 reflects maternal creatinine and is not a matter of concern. Maternal diabetes mellitus (insulin-dependent) poses an increased risk for sacral agenesis and bladder dysfunction in the infant. Maternal hypertension is associated with some risk of renal vein thrombosis. Some boys do not pass urine in the first 24 hours. At 20 hours, no studies are indicated in the absence of other problems. Multicystic kidney is congenital, but not hereditary.

55. A 45-year-old man with a history of hypertension and significant tobacco abuse is impotent one year following a crush injury to the pelvis. A penile arteriogram reveals unilateral focal occlusion of the internal pudenda! artery. Treatment should be:
A. intracavernous vasoactive injections.
B. dorsal venous ligation.
C. percutaneous angioplasty.
D. arterial revascularization.
E. penile prosthesis.
ANSWER=A
Percutaneous or surgical revascularization of the internal pudenda! arteries is not indicated owing to the patient's age and associated atherosclerotic vascular disease secondary to smoking. There is no indication for venous ligation. Owing to the vascular disease, penile injections may not be successful but should be implemented prior to insertion of a penile prosthesis.

56. A 71-year-old man with a history of aortoiliac reconstruction has left flank pain. A noncontrast CT scan reveals obstruction of the left ureter at the pelvic brim. The most likely cause of the obstruction is:
A. compression from an anteriorly placed graft.
B. pseudoaneurysm formation.
C. retroperitoneal fibrosis.
D. ligation of the ureter.
E. ischemia of the ureter.
ANSWER=C
Ureteral obstruction is a recognized complication of reconstructive vascular procedures. The incidence of mild or moderate permanent ureteral obstruction is 2 to 14 percent of patients and of temporary and asymptomatic hydronephrosis is 12 to 30 percent. Most patients present within one year following the procedure, but delays up to 14 years have been reported. Retroperitoneal fibrosis secondary to the surgical procedure is the most common cause of ureteral obstruction. It is likely secondary to bleeding or excessive dissection with resultant fibrosis. The other choices are all causes of obstruction, but not the most common.

57. A 15-year-old boy has hypertension associated with a solitary kidney and renal artery stenosis. His hypertension is most likely characterized by:
PlasmaReninActivity-BPResponsetoAngiotensinIIAntagonists

A.	↑	↔
B.	↑	↓
C.	↑	↑
D.	↓	↔
E.	↓	↓

ANSWER=D
The patient has the Goldblatt one-kidney, one clip model of hypertension. In this model hypertension is characterized by volume expansion and a normal or suppressed plasma renin activity. Hypertension becomes unresponsive to angiotensin II antagonists or converting enzyme inhibition unless the patient is sodium-depleted.

58. A 30-year-old man with a recent diagnosis of end-stage renal disease due to membranous glomerulonephritis develops impotence. The best long-term management of his impotence is:
A. testosterone.
B. vacuum erection device.
C. renal transplantation.
D. sildenafil.
E. intracavernous injections.
ANSWER=C
The etiology of impotence is most likely uremia. Vascular insufficiency is unlikely. A significant number of male dialysis patients are impotent. Approximately 80% of young healthy men regain potency following transplantation.

59. A 26-year-old woman has persistent mild left flank discomfort six months after a percutaneous endopyelotomy for severe hydronephrosis from a ureteropelvic junction obstruction. Ultrasound reveals the hydronephrosis is unchanged and a diuretic renogram reveals a T1/2 of 27 minutes. Optimal treatment is:
A. observation.
B. repeat percutaneous endopyelotomy.
C. retrograde endopyelotomy.
D. pyeloplasty.

E. chronic ureteral stent.
ANSWER=D
This patient has failed endopyelotomy, both on ultrasound and by virtue of renal scan results. This is not surprising as a patient with severe hydronephrosis has as high as a 50% risk of failure compared to a 4% risk in patients with moderate hydronephrosis. Optimal therapy for these patients who have failed endopyelotomy with severe hydronephrosis is open or laparoscopic pyeloplasty.

60. A nine-year-old boy has intermittent gross, painless hematuria. Urinalysis is normal except for numerous red cells without casts. Urine culture and sonogram are negative. A percutaneous renal biopsy shows segmental glomerulonephritis with immunoglobulin deposition in mesangial areas. The diagnosis is:
A. Alport's syndrome.
B. Henoch-Schonlein purpura.
C. membranous glomerulonephritis.
D. lgA nephropathy.
E. hemolytic uremic syndrome.
ANSWER=D
One of the most frequent causes of intermittent gross hematuria in children is Berger's disease or lgA nephropathy. While the disease may be more benign in children, occasional cases will progress to renal failure, making its recognition important. These patients should be followed with serum creatinine and 24-hour urine for creatinine and protein. If these indicate mild and stable disease, biopsy is not required.

61. Compared to primary penile prosthesis insertion, prosthesis revision is associated with an increased risk of:
A. infection.
B. mechanical failure.
C. erosion.
D. persistent penile pain.
E. hemorrhage.
ANSWER=A
A recent study has shown that there is a dramatic increase in infection following revision of penile prostheses.

62. An 18-year-old boy has a 1.5 cm urethral stricture several years following a straddle injury. The best treatment is:
A. urethral dilation.
B. visual internal urethrotomy.
C. visual internal urethrotomy with mesh stent.
D. primary urethral anastomosis.
E. patch flap urethroplasty.
ANSWER=D
Primary urethral anastomosis is the most likely single operation to result in permanent correction. Urethral dilation and visual internal urethrotomy have a high recurrence rate. Patch flap urethroplasty is a reasonable alternative, especially if the stricture is longer. A urethral stent has little place in a young man with a first stricture.

63. An eight-year-old, 25 kg boy with pyelonephritis has vomiting and diarrhea for three days. Serum electrolytes are: Na 150mEq/I, K 3.0mEq/I, Cl 117mEq/I, HCO3 25mEq/I. The most appropriate intravenous therapy for the first 24 hours is:
A. 0.25 NS with 40mEq/I of KCI at 100 cc/hr.
B. D5W with 40mEq/I of KCI at 200 cc/hr.
C. NS with 40mEq/I of KCI at 100 cc/hr.
D. NS with 40mEq/I of KCI at 75 cc/hr.
E. D5W with 10mEq/I of KCI at 200 cc/hr.
ANSWER=A
The child has significant hypernatremia and hypokalemia. Most cases of hypernatremia are due to loss of water or failure to adequately replace water loss. In this case, water loss is due to diarrhea and vomiting. These extrarenal water losses are associated with a decrease in extracellular fluid volume indicating deficits in total body sodium as well as water. The proportionally greater deficiency of water than of sodium leads to the increase in the serum sodium concentration. Initial fluid replacement in this child should replace the water loss and salt losses with a hypotonic salt solution (0.25NS with 40 m

64. Hypoactive sexual desire disorder in postmenopausal women is best treated with:
A. estrogens.
B. testosterone.
C. testosterone and estrogen.
D. dehydroepiandrosterone (DHEA).
E. sildenafil.
ANSWER=C
In a prospective, two year, single-blinded, randomized trial of 34 postmenopausal women, combined estrogen and testosterone therapy led to a greater improvement in multiple measures of sexuality than just estrogen therapy alone.

65. A 20-year-old man sustains a circumferential avulsion of the skin of the mid-shaft of the penis. There is intact skin on both the proximal and distal aspects of the penile shaft, with a denuded area 4 cm in length. The most appropriate treatment is:
A. primary approximation of the skin.
B. split thickness skin graft to the denuded area.
C. split thickness skin graft and removal of distal penile skin.
D. full thickness skin graft to the denuded area.
E. scrotal rotational flap covering the denuded area.
ANSWER=C
A 4 cm gap, if covered by simple approximation, will result in recession of the penis into the scrotum. A scrotal rotational flap will cover the penile skin with hairy, rugous skin and will be cosmetically displeasing. Therefore, a split thickness skin graft should be used. The distal skin should be removed. If it is not removed, the interposed split thickness graft will cause obstruction of the normal lymphatic drainage of this distal skin and lymphedema will result. There is no reason to remove the proximal skin.

66. Stabilization of the myocardium during life-threatening hyperkalemia associated with loss of P waves and widening of the QRS complex on the electrocardiogram is best accomplished using:
A. calcium gluconate intravenously.
B. NaHC03 intravenously.
C. 10% glucose with regular insulin.
D. potassium exchange resin with sorbitol.
E. hemodialysis.
ANSWER=A
Severe hyperkalemic cardiotoxicity must be treated immediately, not by lowering serum potassium concentration alone but preventing cardiac excitability and antagonizing the cardiotoxic effects of hyperkalemia. Thus, intravenous calcium gluconate is the treatment of choice. This must be followed by measures to immediately lower serum potassium since the duration of calcium effects are brief. Bicarbonate and glucose should be given next, but they are short-acting and exchange resins/dialysis should be planned for more long-term treatment.

67. The organism most frequently associated with penile prosthetic infections is:
A. E. coli.
B. Staphylococcus epidermidis.
C. Staphylococcus aureus.
D. Enterococcus faecalis.
E. group B streptococcus.
ANSWER=B
Greater than 90% of penile prosthetic infections are caused by staphylococcus epidermidis.

68. A 45-year-old woman has right flank pain. CT scan shows a right perirenal hematoma. The most likely underlying cause is:
A. renal adenocarcinoma.
B. renal angiomyolipoma.
C. renal artery aneurysm.
D. polyarteritis nodosa.
E. complex renal cyst.
ANSWER=A
The most common cause of retroperitoneal hemorrhage is rupture of an abdominal aortic aneurysm. Renal and adrenal diseases account for the majority of cases other than those due to aortic aneurysms. Renal adenocarcinomas account for the majority of these latter cases. Although both malignant and benign tumors may rupture, renal adenocarcinomas account for the majority of such cases, due to the higher incidence of such tumors compared to benign lesions (angiomyolipomas).

69. An oliguric patient has a spot urine sodium of 8mEq/I. The condition most consistent with this laboratory finding is:
A. prerenal azotemia.
B. acute tubular necrosis.
C. chronic pyelonephritis.
D. renal tubular acidosis.
E. acute urinary obstruction.
ANSWER=A
Urine volume is the difference between GFR and amount of water resorbed. If a normal adult has a GFR of 180 liters/day then 179 liters must be reabsorbed to have a urine volume of one liter. Anuria is described as urine volume that is virtually nil, i.e., less than 50 ml/day. Oliguria is substantially reduced urine volume (less than 30 ml/hour). Urine sodium concentration is usually below 25mEq/I in volume depletion and above 40mEq/I with normovolemia or acute tubular necrosis. A urinary sodium of only 8mEq/I is most suggestive of prerenal azotemia.

70. In men with multiple sclerosis, the urodynamic finding that predicts upper tract deterioration is:
A. detrusor hyperreflexia.
B. impaired contractility.
C. elevated voiding pressure.
D. detrusor areflexia.
E. detrusor-striated sphincter dyssynergia.
ANSWER=E
Men with multiple sclerosis and detrusor-striated sphincter dyssynergia are at significant risk to develop upper urinary tract abnormalities. Besides detrusor-striated sphincter dyssynergia in men, sustained intravesical pressures greater than 40 cm of water rather than just elevated voiding pressures is also a significant risk factor. Although all of the other answers may be seen in men with voiding symptoms and multiple sclerosis, their presence is not as significant as the initial findings of detrusor-striated sphincter dyssynergia.

71. A 35-year-old woman has severe pain at the right lower quadrant trocar site three days after a right laparoscopic pyeloplasty. She has a low-grade fever, normal bowel sounds, mild abdominal distension with tenderness at the trocar site, and a WBC of 2,900/cu mm. The most likely diagnosis is:
A. port site hernia.
B. port site infection.
C. urinoma.
D. intraperitoneal bleed.
E. bowel injury.
ANSWER=E
Bowel injury associated with laparoscopic surgery is a rare complication. The presentation is unusual and consists of severe pain at the trocar site nearest the injury, abdominal distension and leukopenia. Peritoneal signs and ileus are distinctly absent and the painful trocar site appears remarkably normal. Based on these findings, a CT scan should be obtained at the first suspicion, and immediate repair is mandatory. Failure to recognize a bowel injury may result in rapid cardiovascular collapse and death.

72. A 30-year-old man with diabetes insipidus has been NPO for 16 hours. He becomes confused, lethargic, and hyperreflexic. The initial fluids given should be:
A. lactated Ringers.
B. D5W.
C. D5W /.2NS.
D. D5W/.45NS.
E. 3% saline.
ANSWER=A
This patient has symptoms characteristic of hypovolemic hypernatremia. It is essential to first restore plasma volume with lactated Ringers. The hypernatremia should then be lowered slowly, no more than 10mEq per day to prevent intracranial swelling and fatal complications.

73. In a paraplegic man with a T-12 spinal cord transection, the major complication of external urethral sphincterotomy is:
A. significant hemorrhage.
B. acute urinary tract sepsis.
C. priapism.
D. impotence.
E. autonomic dysreflexia.
ANSWER=A
Significant hemorrhage is the major complication to be anticipated in the performance of an external sphincterotomy. Autonomic dysreflexia would not be anticipated to be a major problem because of the level of the lesion. Autonomic dysreflexia is seen with high spinal cord lesions which occur above the level of the sympathetic outflow tract. With appropriate antibiotic coverage, acute urinary tract sepsis is usually not a major problem. Likewise, priapism or impotence are rarely if ever encountered during the performance of this operative procedure.

74. A 23-year-old man notes a cracking noise and subsequent penile pain during intercourse, followed by progressive penile swelling and ecchymosis. He is initially embarrassed to seek medical attention despite the persistent penile pain. Thirty-six hours after the traumatic event, he is afebrile with stable vital signs. A retrograde urethrogram is normal. The next step is:
A. reassurance and cold compresses.
B. cavernosal-spongiosal shunt.
C. surgical exploration.
D. Foley catheter splinting.
E. corporeal aspiration and Foley catheter drainage.
ANSWER=C
Delayed presentation after penile fracture should not change ones management that requires prompt surgical exploration with evacuation of the hematoma and repair of the tunica albuginea. A retrograde urethrogram should be performed prior to surgical exploration. There does not appear to be altered sexual function or penile curvature despite the delayed presentation and repair.

75. A 4 kg, seven-day-old boy undergoes a left nephrectomy. The blood loss is 40 ml. Two hours postoperatively, the BP is 70/40 mm Hg, pulse rate is 125, and hemoglobin is 11.0 g. He has made 8 cc of urine since surgery. The most appropriate management is:
A. transfuse 10 ml/kg PRBCs.
B. give 10 ml/kg 5% albumin.
C. bolus with 100 ml Ringer's lactate.
D. place a central venous catheter.
E. continue maintenance fluids.
ANSWER=E
The vital signs in this infant are normal for age as is the hemoglobin. No specific intervention is necessary as the urine output is an acceptable 0.5 cc/hr.

76. A 55-year-old man has urinary retention after abdominoperineal resection for carcinoma. By the third postoperative week, he is voiding small amounts with diurnal incontinence. He has a residual of 300 ml. Prior to the surgical procedure, he had an enlarged prostate on rectal examination and mild LUTS. The next step is:
A. cystoscopy.
B. urodynamics.
C. clean intermittent catheterization.
D. TURP.
E. bethanechol.
ANSWER=C
This patient has a bladder neural injury which may recover, so intermittent catheterization is the treatment of choice. Bethanechol will not help. A TURP is premature, may cause permanent incontinence, and in any case, will not help generate a detrusor contraction. Cystoscopy and urodynamics may show a large prostate and signs of obstruction, but will not impact management at this time.

77. The chemotherapeutic agent most likely to be associated with increased toxicity because of reabsorption from an ileal neobladder is:
A. methotrexate.
B. gemcitabine.
C. vincristine.
D. doxorubicin.
E. cisplatinum.
ANSWER=A
Toxic metabolic effects secondary to drug reabsorption of methotrexate from intestinal mucosa used in urinary tract

reconstruction can occur. Vigorous hydration, alkalinization of the urine, and catheter drainage can prevent this complication. The other agents given do not display a significantly increased toxicity because of intestinal reabsorption. Methotrexate is the smallest molecule of those listed, and therefore most likely to be absorbed.

78. A four-year-old boy with posterior urethral valves has a vesicostomy. Serum creatinine is 0.6 mg/di. Ultrasound shows minimal hydronephrosis. Videourodynamics show a bladder capacity of 30 cc with a pressure of 14 cm H20 when leakage occurs from the vesicostomy with no reflux. Undiversion is considered. The best management is resection of the posterior urethral valves and:
A. ileal augmentation cystoplasty.
B. ileal augmentation with appendicovesicostomy.
C. bladder cycling via the vesicostomy.
D. primary closure of the vesicostomy.
E. autoaugmentation cystoplasty.
ANSWER=D
Approximately 75% of children will have normal bladder function after a period of defunctionalization. The need for bladder augmentation is more related to the effects of the primary pathological condition on the detrusor than the diversion itself. Augmentation cystoplasty is rarely needed after undiversion in patients with posterior urethral valves.

79. A unique pharmacological property of imipramine compared to oxybutynin is:
A. alpha-blocker effect.
B. muscarinic subtype selectivity.
C. antispasmodic effect.
D. anesthetic-like activity.
E. anticholinergic activity.
ANSWER=D
Imipramine has a strong direct inhibitory effect on bladder smooth muscle (neither anticholinergic nor adrenergic) which is probably the result of local anesthetic-like action at nerve terminals in adjacent effector membranes, or inhibition of calcium in the excitation contraction coupling process. imipramine also has an alpha-agonist effect, and also inhibits serotonin reuptake.

80. A 55-year-old woman has Grade 11, Stage T1 transitional cell carcinoma of the bladder. The abnormality most likely to predict progression to invasive disease is:
A. 17p chromosomal deletion.
B. 17q chromosomal deletion.
C. increased p53 immunostaining.
D. decreased p53 immunostaining.
E. c ERB 2 overexpression.
ANSWER=C
Deletion of 17p is common in invasive tumors but rarely is observed in superficial cancer, except for carcinoma in situ. The proposed site of the p53 tumor suppressor gene is 17p. The p53 tumor suppressor gene is more often associated with invasive bladder cancer than with superficial cancer. Superficial cancers with increased p53 immunostaining are at high risk for tumor progression. In a multivariate analysis, increased p53 immunostaining was an independent prognosticator for patient survival. Increased p53 immunostaining occurs as an early event in low Stage pTa and pT1 tumors that ultimately progress to muscle invasive disease.

81. Compared to other children with bladder exstrophy, those who undergo prepubertal intestinal bladder augmentation are:
A. more likely to have nocturnal enuresis.
B. less likely to have bladder calculi.
C. more likely to be short in stature.
D. more likely to develop transitional cell carcinoma of the bladder.
E. more likely to develop Vitamin B and K deficiencies.
ANSWER=C
It has been demonstrated in several studies that linear growth is less, on average, in children who undergo intestinal bladder augmentation than in those who do not. The reasons for this are not clear, but may be related to subclinical metabolic acidosis. Bladder augmentation will not increase nocturnal enuresis, which is common in children with exstrophy. Those with bladder augmentation are more likely to have bladder stones. There may be an increased risk of neoplasia in augmented bladders, but this is more commonly adenocarcinoma. Long-term studies have failed to consistently demonstrate vitamin deficiencies in children undergoing gastrointestinal bladder reconstruction.

82. A 35-year-old woman with a sacral spinal cord injury has urinary incontinence on clean intermittent catheterization every three hours. Urine culture is negative. Videourodynamics reveal a detrusor leak point pressure of 50 cm H20 at 200 ml and no detrusor instability. The bladder neck is closed at rest and during Valsalva, but opens at the point of leakage. The next step is:
A. pubovaginal sling.
B. transurethral collagen injection.
C. ephedrine.
D. oxybutynin.
E. increase frequency of catheterization.
ANSWER=D
This patient clearly has urinary incontinence secondary to poor bladder compliance as indicated by a detrusor leak point pressure of 50 cm H20 and her history of a sacral spinal cord injury. Injury to the sacral spinal cord often results in poor bladder compliance which can cause urinary incontinence and damage to the upper urinary tract. The poor compliance is best initially treated with anticholinergics such as oxybutynin but may ultimately require augmentation cystoplasty. Procedures or medications designed to increase outlet resistance risk a worsening of the compliance and injury to the upper urinary tract.

83. The drug with the most rapid onset of action in treating BCG sepsis is:
A. isoniazid.
B. rifampin.
C. ethambutol.
D. para-aminosalicylic acid.
E. cycloserine.
ANSWER=E
Cycloserine inhibits BCG growth within 24 hours. The other drugs listed require 2-7 days to inhibit BCG growth. Because of its relatively rapid action, cycloserine can be life saving in patients with BCG sepsis.

84. A seven-year-old boy with cloacal exstrophy undergoes gastric augmentation with a catheterizable stoma and closure of the bladder neck. He was initially continent but now has diurnal leakage despite regular catheterization and saline irrigation. The most likely cause of the incontinence is:
A. incompetent catheterizable stoma.
B. fistula at site of bladder neck closure.
C. incomplete reservoir emptying.
D. high amplitude rhythmic contractions.
E. decreased reservoir capacity.
ANSWER=D
Although rhythmic contractions have been noted with all bowel segments, they can be present in up to 62% of patients following gastrocystoplasty. Use of a slightly larger segment of stomach that is longer along the greater curvature results in improved urodynamics. Addition of a segment of ileum to form a composite reservoir will resolve the compliance issue.

85. Enterocele repair is indicated when the:
A. enterocele is iatrogenic.
B. enterocele is visible.
C. patient experiences low back pain.
D. vaginal mucosa is ulcerated.
E. enterocele is increasing in size.
ANSWER=D
Conservative therapy for an enterocele may include avoiding straining, minimizmg constipation, pelvic floor muscle exercises, hormonal therapy or a vaginal pessary. Surgery is indicated if the patient's lifestyle is affected and the condition cannot be managed conservatively. When vaginal mucosal ulceration develops topical estrogen may improve the health of the tissue but the effect is rarely complete or lasting.

86. During a radical cystoprostatectomy, intractable bleeding occurs after transection of the prostatomembranous urethra.

Despite multiple suture ligatures, there is a persistent high volume venous blood loss from the retropubic space. The decision is made to ligate the dorsal vein. The appropriate tributaries can be found:
A. deep to Buck's fascia.
B. superficial to Buck's fascia.
C. superficial to Calles' fascia.
D. subcutaneously on the penile shaft.
E. at the level of the proximal crura.
ANSWER=A
The tributaries from the deep dorsal vein are beneath Buck's fascia. Ligation of the dorsal vein in this situation is rarely required.

87. The mechanism of action of quinolone antibiotics is:
A. inhibition of bacterial DNA gyrase.
B. binding to 508 ribosomal subunit.
C. inhibition of cell wall synthesis.
D. inhibition of dihydrofolate reductase.
E. activation of cell wall autolytic enzymes.
ANSWER=A
Antibiotics are classified according to their chemical structure and proposed mechanism of action. Quinolones inhibit bacterial DNA gyrase promoting double stranded DNA breakage and subsequently blocking DNA synthesis. The macrolide antibiotics such as erythromycin bind to the 50S ribosomal subunit of bacteria and inhibit RNA-dependent protein synthesis. The penicillins and cephalosporins act by inhibiting cell wall synthesis. These drugs also activate cell wall autolytic enzymes. Trimethoprim blocks the conversion of dihydrofolate to tetrahydrofolate by inhibiting the enzyme dihydrofolate reductase.

88. A 61-year-old man with Parkinson's disease has urinary frequency, urgency, urge incontinence, and weak stream. Urodynamics reveal involuntary detrusor contractions, a sustained voiding detrusor pressure of 88 cm H2O and a maximum flow of 7 ml/sec. Postvoid residual is 100 ml. Treatment should be:
A. oxybutynin.
B. diazepam.
C. terazosin .
D. baclofen.
E. imipramine.
ANSWER=C
The urodynamic data clearly documents involuntary detrusor contractions and bladder outlet obstruction, most likely due to BPH. The most reasonable pharmacologic approach is to use an alpha sympathetic blocking agent such as terazosin. Detrusor-external sphincter dyssynergia is not seen in Parkinson's obstruction. Thus diazepam and baclofen, which are intended to induce skeletal muscle relaxation, are not indicated. Both oxybutinin and imipramine may abolish the involuntary detrusor contractions, but the patient will probably not void because of the prostatic obstruction.

89. A 52-year-old man has muscle invasive transitional cell bladder carcinoma which on bimanual examination is fixed to the pelvic side wall. Serum creatinine is 2.8 mg/di. A CT scan reveals extensive local tumor and bilateral hydronephrosis, but no nodal or visceral metastases. Treatment at this time should be:
A. chemotherapy with nonnephrotoxic agents.
B. percutaneous nephrostomies followed by chemotherapy.
C. radiation and chemotherapy.
D. retrograde ureteral stents followed by chemotherapy.
E. ileal conduit and chemotherapy.
ANSWER=B
Radical cystectomy and urinary diversion in a patient with this degree of renal failure would be associated with excessive morbidity and would not likely render the patient disease-free. A more reasonable approach would be to first place nephrostomy tubes to allow the patient to recover renal function. While some might perform radical cystectomy after renal function stabilizes, it is not likely to render the patient disease-free. Considering the moderate efficacy of platinum based chemotherapy, it is reasonable to treat the patient first with chemotherapy and to attempt surgical resection if he has a favorable response. While the impact of this approach on survival has not been established, significant response rates have been reported. If the patient does not respond, his survival is extremely limited and he should be palliated only. Urinary diversion at this point would affectively manage the renal failure but it offers no long-term hope of survival, unless chemotherapy is effective. Retrograde stent placement is very unlikely to be successful considering the location of the tumor.

90. A six-year-old uncircumcised boy has acute onset of gross hematuria, dysuria, and urinary frequency. There is no fever or flank pain. The urine is sterile and ultrasound shows normal kidneys with diffuse thickening of the bladder wall. The most appropriate management is:
A. observation.
B. circumcision.
C. acyclovir.
D. trimethoprim-sulfa.
E. bladder biopsy.
ANSWER=A
The clinical history and the findings during investigation of the urinary tract are most consistent with acute viral cystitis. The most common virus is adenovirus. This infection is more common in boys than in girls, may cause transient vesicoureteral reflux, and is usually self-limiting. Observation is the most appropriate management.

91. During multichannel pressure-flow urodynamics, true detrusor pressure is best determined by the:
A. difference between vesical and urethral pressure.
B. difference between vesical and abdominal pressure.
C. Valsalva leak point pressure.
D. sum of vesical and urethral pressure.
E. sum of vesical and abdominal pressure.
ANSWER=B
Detrusor pressure (Pdet) is not a directly measured parameter. Rather, it is calculated by subtracting abdominal pressure (Pabd), determined by an intra-rectal probe, from intravesical pressure (Pves) which is measured by a catheter located in the bladder. None of the other calculations are helpful in assessing detrusor pressure. Valsalva leak point pressure assesses the urethra's ability to withstand increases in intraabdominal pressure and is helpful in evaluating patients with stress urinary incontinence.

92. A 55-year-old woman with microhematuria has persistently positive voided urine cytologies. Evaluation consisting of two sets of cystoscopy and retrograde pyelograms, selective upper tract cytologies and random bladder/urethral strip biopsies are negative. The next step is:
A. repeat cytology in three months.
B. repeat random biopsies in three months.
C. intravesical BCG.
D. intravesical mitomycin C.
E. gynecological evaluation.
ANSWER=E
Over 90% of patients with unconfirmed positive cytologies will develop recognizable cancer in follow up. While the vast majority develop in the GU tract, 14% develop in the cervix, uterus and gastrointestinal tract. Therefore, following a thorough negative GU evaluation, a gynecological evaluation is warranted.

93. A 16-year-old boy has dysuria, a urethral discharge, and low grade fever. He has missed two previously scheduled appointments. The best treatment is:
A. penicillin 1 million units with probenecid 250 mg IM.
B. ciprofloxacin 500 mg BID for seven days.
C. ciprofloxacin 500 mg BID and doxycycline 100 mg BID for seven days.
D. cefixime 400 mg PO and azithromycin 1 g PO.
E. doxycycline 100 mg PO BID for seven days.
ANSWER=D
This boy has a presumptive diagnosis of gonococcal urethritis and should be treated at the time of initial contact to ensure adequate treatment. His compliance with follow-up should be Questioned and one-time treatment is probably optimal. This would be best accomplished with oral cefixime and azithromycin for the presumptive associated chlamydia trachomatis that is present in 50% of patients with gonococcal urethritis. Treatment of sexual partner(s) is critical to treatment success. An alternative to cefixime is 125 mg of IM. ceftriaxone.

94. Which renal artery occlusive disease is most likely to be associated with stable renal function:
A. intimal fibroplasia.
B. medial hyperplasia.
C. medial fibroplasia.
D. perimedial fibroplasia.
E. atherosclerotic disease.
ANSWER=C
In patients with medial fibroplasia, increases in serum creatinine or reduction in kidney size are not the rule. Despite the progressive nature of this disease, the risk of losing renal function over time because of progressive arterial occlusion is relatively small. Therefore, renal revascularization for preservation of renal function need not be routinely undertaken even for patients with bilateral disease. Operative intervention or transluminal angioplasty can be limited to those patients with hypertension refractory to control with drug therapy. Progressive ischemic nephropathy leading to loss of function is the end stage of the pathophysiology of perimedial or intimal fibroplasia, medial hyperplasia, or atherosclerotic disease.

95. During a radical retropubic prostatectomy, the maneuver utilized to expose and help preserve the neurovascular bundle to the corpora cavernosa is:
A. ligation of the puboprostatic ligaments.
B. posterolateral ligation of the prostatic pedicles.
C. division of the lateral prostatic fascia.
D. division of the bladder neck before dissection lateral to the prostate.
E. mobilization of the membranous urethra and dorsal vein complex within the
lateral prostatic fascia.
ANSWER=C
Incision of the lateral prostatic fascia allows direct vision of the neurovascular bundles from the membranous urethra to the bladder neck. The puboprostatic ligaments contain no vessels and do not require ligation to give access to the dorsal veins and membranous urethra. Mobilization of the dorsal veins and membranous urethra together within the lateral prostatic fascia will usually injure the bundle. Division of the bladder neck before more distal dissection (antegrade approach) is more likely to lead to damage to the bundles than the retrograde approach (Walsh) in which the membranous urethra is severed prior to working cranially. Ligation of the prostatic pedicles posterolaterally, while occasionally necessary to encompass direct extension of tumor, will usually interrupt the neurovascular bundles.

96. A 25-year-old man with a history of posterior urethral valves will most likely have:
A. arteriogenic erectile dysfunction.
B. normal sperm count.
C. normal semen quality.
D. neurogenic erectile dysfunction.
E. abnormal Sertoli cell function.
ANSWER=B
Overall erectile function in valve patients is good although fertility has been reported to be compromised because of dribbling or absent ejaculate or retrograde ejaculation. Overall semen quality is not good (high viscosity and pH), but sperm counts have been reported as normal.

97. The incidence of renal cell carcinoma exceeds that of the general population for patients with:
A. medullary cystic disease.
B. acquired renal cystic disease.
C. adult polycystic kidney disease.
D. multiple endocrine neoplasia (Type 2).
E. tuberous sclerosis.
ANSWER=B
Patients with ESRD-associated acquired renal cystic disease develop renal cell carcinoma with an incidence 40 times that of the general population. The incidence is higher in males and correlates with the length of time on dialysis. None of the other conditions are associated with renal cell carcinoma.

98. Which hormonal therapy for prostate cancer is most likely to cause visual disturbances:
A. flutamide (Eulexin).
B. bicalutamide (Casodex).
C. ketoconazole (Nizoral).
D. nilutamide (Nilandron).
E. leuprolide (Lupron).
ANSWER=D
Studies of Nilutamide have demonstrated that its unique side-effects, in comparison to other anti-androgens have included visual disturbances (light to dark adaptation) and rare cases of pulmonary fibrosis.

99. A four-year-old boy undergoes a left dismembered pyeloplasty with placement of an extraperitoneal drain. By the third postoperative day, there is minimal output from the drain. The urethral catheter is removed. The next day, output from the drain is 400 cc. The next step is:
A. advance drain slowly.
B. replace urethral catheter.
C. percutaneous nephrostomy.
D. internal ureteral stent.
E. open repair of anastomotic leak.
ANSWER=B
Postoperative placement of a urethral catheter after an open pyeloplasty appear prudent as the catheter lessens the risk for an anastomotic leak due to back pressure from either ipsilateral vesicoureteral reflux or a distended bladder. In the event of urinary leakage from the flank drain occurring after removal of the urethral catheter, catheter replacement should be the most appropriate next step in management.

100. A 62-year-old man undergoes angiography for evaluation of renal vascular disease. His serum creatinine is 1.8 mg/di. The best treatment to prevent contrast related renal dysfunction is hydration and:
A. furosemide.
B. N-acetylcysteine.
C. dopamine.
D. mannitol.
E. prednisone.
ANSWER=B
Patients with established renal insufficiency (serum creatinine > 1.5 mg/di) are considered to be at increased risk for contrast related renal injury. The antioxidant N-acetylcysteine in combination with hydration has been shown to significantly reduce contrast-induced nephrotoxicity in patients with chronic renal insufficiency compared with hydration alone. None of the other alternatives has been shown to be more renoprotective than hydration alone.

101. A 67-year-old man with a clinical stage T2bNoMo Gleason 7 prostate cancer with a PSA of 7.8 ng/ml is treated with 70 Gy external beam radiotherapy. His PSA nadirs to 0.8ng/ml three months after therapy. Three months later he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/ml. The most likely explanation for the elevated PSA level is:
A. prostatic infarct.
B. persistent prostate cancer.
C. PSA bounce effect.
D. radiation-induced prostatitis.
E. insufficient period of observation after therapy.
ANSWER=B
A marked increase in serum PSA after a nadir within six months of external beam radiotherapy is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks (PSA bounce) and is more common after interstitial brachytherapy than external beam therapy.

102. A full-term newborn boy had antenatal hydronephrosis identified during in-utero ultrasound. Ultrasound and VCUG four hours post-natally are normal. The next step is:
A. no further evaluation.
B. MAG-3 renal scan in three months.
C. ultrasonography in three months.
D. repeat ultrasound in 24 hours.
E. IVP in three months.
ANSWER=C

Timing of the neonatal ultrasound is important to interpretation of its clinical relevance. The renal pelvis may be moderately dilated on antenatal ultrasonography, yet appear normal in the first few days of life because oliguria during the first 24 to 48 hours of life might cause a distended renal pelvis to decompress transiently. If the renal ultrasound is normal, a VCUG should be done to determine whether reflux is present, and a renal ultrasound repeated in six weeks.

103. A 45-year-old woman with no prior urologic history is evaluated as a potential kidney donor for her crossmatch negative, zero antigen-matched sister. IVP reveals complete right ureteral duplication. Renal arteriography reveals one artery on the left and two on the right. This potential donor should:
A. be eliminated from further consideration for donation.
B. undergo cystoscopy and VCUG.
C. undergo a differential renal function scan.
D. undergo right donor nephrectomy.
E. undergo left donor nephrectomy.
ANSWER=E
With current immunosuppressive regimens, even a zero antigen match kidney from a living related donor can be expected to function with a high success rate at one year. Currently, the only prerequisite for donation in this setting is a negative cross match. The uncomplicated duplication anomaly does not preclude donation. If there are single arteries bilaterally, the nonduplicated side should be taken for donation as the transplant itself will be less complicated and the donor will still be left with a functionally normal kidney. With two ureters on the duplicated (right) side, the choice for donation of the left kidney is even clearer.

104. A patient with high-risk stage B2 (T2b) prostatic carcinoma is to have a staging pelvic lymphadenectomy prior to definitive external beam radiation. The primary advantage of an extraperitoneal versus intraperitoneal approach is:
A. better exposure of the common iliac nodes.
B. better exposure of the obturator fossa.
C. lower incidence of lymphoceles.
D. lower incidence of post-radiation enteritis.
E. lower incidence of ureteral injury.
ANSWER=D
The advantage of an intraperitoneal approach is exposure of the nodes along the common iliac and aortic area but this approach is associated with a significant increase of post-radiation enteritis due to bowel adhesions. Also, with the intraperitoneal approach, a prolonged hospital stay with increased ileus and wound infections is not uncommon. Therefore, most urologists would recommend the extraperitoneal approach.

105. A two-year-old boy with stranguria develops gross hematuria. Urine culture is negative. Ultrasound shows normal kidneys and a polypoid mass at the base of the bladder. The next step is:
A. CT scan with contrast.
B. IVP.
C. VCUG.
D. MRI scan with gadolinium.
E. cystoscopy.
ANSWER=C
Congenital urethral polyps are an unusual cause of bladder outlet obstruction. They are benign fibroepithelial growths that usually originate from the verumontanum and extend towards the bladder. These polyps may also originate at the bladder neck. A VCUG will be diagnostic showing a filling defect at the bladder base. During voiding, the polyp will prolapse, causing outlet obstruction. Transurethral resection with electrocautery is usually definitive.

106. A 42-year-old woman has a slow rise in serum creatinine from 1.2 to 2.0 mg/di one year after uneventful live donor transplantation. Ultrasound shows significant hydronephrosis and no perinephric fluid collection. The next step is:
A. CT scan.
B. MAG-3 renal scan.
C. VCUG.
D. retrograde ureterogram.
E. renal allograft biopsy.
ANSWER=C
The absence of a perinephric fluid collection and late presentation of hydronephrosis accompanied by slowly declining renal function suggests the possibility of significant reflux into the transplant ureter. The most appropriate initial diagnostic study is a voiding cystou reth rog ram.

107. A 79-year-old man with metastatic prostate cancer has a rapidly rising PSA on three consecutive occasions while on leuprolide and flutamide. He is asymptomatic. The most appropriate treatment is:
A. bilateral orchiectomy.
B. discontinue flutamide.
C. discontinue leuprolide and flutamide.
D. strontium-89 radiotherapy.
E. systemic chemotherapy.
ANSWER=B
Approximately 30% of patients experience a 50% decrease in serum PSA when flutamide is discontinued after failing combined androgen deprivation therapy with leuprolide or orchiectomy with flutamide. In some of these cases objective responses also occur. Only patients receiving combined therapy appear to respond. The androgen withdrawal syndrome has also been reported with bicalutamide. Strontium-89 and/or chemotherapy are only indicated for the palliation of symptomatic bony metastases.

108. A 38-week-gestation newborn with posterior urethral valves has a serum creatinine of 1.8 mg/di. That level:
A. initially falls with a rapid rise in GFR.
B. is an ominous predictor of future renal function.
C. will decrease with completion of nephrogenesis.
D. is not reflective of the degree of renal function impairment.
E. will result in increased active sodium absorption from the descending limb of the
loop of Henle.
ANSWER=D
The creatinine in a newborn is reflective of maternal renal function and is not representative of the degree of renal impairment or lack thereof due to the obstruction. This creatinine level may not change with an increase in GFR if renal dysgenesis has occurred. At 38 weeks, nephrogenesis is complete and will not affect the level of the creatinine.

109. A calyceal fistula in a renal allograft is most frequently associated with:
A. multiple renal arteries.
B. multiple renal veins.
C. ureteropyelostomy.
D. renal capsule injury.
E. hyperacute rejection.
ANSWER=A
Calyceal fistulae are an uncommon cause of urinary tract fistulae in renal transplants. They are more commonly seen in allografts with multiple renal arteries. They are usually caused by segmental renal infarction secondary to occlusion of a renal artery branch.

110. A 69-year-old man with a large clinical Stage T3a (C) prostate cancer undergoes three months of androgen deprivation therapy prior to radical prostatectomy. The only beneficial effect of this therapy is:
A. decrease the size of the prostate gland.
B. downstage the tumor to an organ-confined lesion.
C. make the surgery technically easier.
D. decrease PSA recurrence rate.
E. improve the long-term, cause-specific survival.
ANSWER=A
There has been some enthusiasm for androgen deprivation therapy prior to radical prostatectomy for patients with large Stage B2 (T2c) and small Stage C (T3a) prostate cancers. The theory was that this therapy would "downstage" the cancer and make the surgical procedure technically easier. While prostate gland size is decreased, ultimately, the PSA failure rate is unchanged.

111. A newborn infant is circumcised with a Gomco clamp after administration of a local anesthetic containing 1 :1,000 epinephrine. Blanching of the penile skin and glans penis is observed. Physical examination demonstrates mild peripheral

vasoconstriction of the hands and feet, blood pressure of 90/60 mm Hg, and a pulse of 160. The next step is:
A. l.V. papaverine.
B. l.V. propranolol.
C. subcutaneous phentolamine.
D. caudal sympathetic block.
E. oral nifedipine.
ANSWER=C
Inadvertent injection of concentrated epinephrine can occur with the use of local anesthetics. Vasoconstrictors are used to provide a bloodless operative field. Any physician performing local blocks should be familiar with the treatment of their complications. The patient has primarily local effects of the injected epinephrine. These are best treated with the alphaadrenergic antagonist phentolamine delivered subcutaneously at the injection site at a dose of 0.1 to 0.2 mg/kg. The patient should be carefully monitored for untoward effects of the epinephrine and the phentolamine.

112. Calcium reabsorption in the distal renal tubule is mediated primarily by:
A. Vitamin D.
B. aldosterone.
C. hypocalcemia.
D. urinary sodium.
E. parathyroid hormone.
ANSWER=E
Parathyroid hormone mediates renal reabsorption of calcium in the distal nephron. More proximally in the nephron, calcium is reabsorbed in concert with sodium. Vitamin D influences calcium homeostasis primarily by enhancing small bowel absorption. Significant hypocalcemia stimulates renal calcium preservation by inducing parathyroid hormone secretion. Aldosterone mediates distal renal preservation of sodium in exchange for available hydrogen and/or potassium, and has no direct effect on calcium reabsorption.

113. A 50-year-old man has a large right renal mass with tumor thrombus extending into the atrium. Under hypothermia and circulatory arrest, he undergoes nephrectomy with removal of the tumor thrombus. The most frequent significant complication is:
A. hepatic dysfunction.
B. pulmonary air embolus.
C. central nervous system deficit.
D. coagulopathy and hemorrhage.
E. tumor emboli.
ANSWER=D
Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage yet the most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction.

114. A ten-year-old boy has a solitary right testicle on his physical examination for Little League football. Left inguinal exploration has verified blind-ending gonadal vessels. The preferred recommendation is:
A. MRI scan of the abdomen and pelvis.
B. laparoscopy.
C. abdominal exploration.
D. he plays football wearing a protective cup.
E. he not plays football.
ANSWER=D
It is possible to document absence of a testis by demonstration of blind-ending spermatic vessels in the inguinal canal. If such evidence is unequivocal, as stated in this case, then no further imaging is necessary. There is no need to discourage football as long as a protective cup is worn. Advice about possible torsion and self-exam should also be offered. The Committee on Sports Medicine of the American Academy of Pediatrics recommends that patients with an absent testicle be allowed to participate in contact/collision sports if they wear a protective cup.

115. Medullary sponge kidney disease is:
A. cystic dilation of the distal convoluted tubules.
B. a bilateral and hereditary renal abnormality.
C. characterized by hypocitraturia.
D. best diagnosed by IVP.
E. a precursor of end stage renal disease.
ANSWER=D
On intravenous pyelography, medullary sponge kidney is characterized by the puddling of contrast material in ectatic papillary collecting ducts; the distal convoluted tubules are not dilated in this condition. It is not an inherited condition and may be unilateral in upwards of 25% of patients. Individuals with this disorder can develop renal stones and nephrocalcinosis. They can have a spectrum of metabolic abnormalities including hypercalciuria and hypocitraturia.

116. A 40-year-old man with van Hippel-Lindau syndrome has multiple solid tumors ranging from 2-4 cm throughout the entire left kidney. The right kidney has a 6 cm lower pole solid mass. There is no evidence of metastatic disease. The best management is:
A. bilateral tumor enucleations.
B. bilateral nephrectomy and dialysis.
C. left radical nephrectomy and right partial nephrectomy.
D. bilateral cryoablation.
E. surveillance.
ANSWER=C
Patients with von Hippel-Lindau disease are more likely to present with bilateral synchronous renal cell carcinoma than those with sporadic tumors. Results of nephron-sparing operations have preserved renal function in many patients and when complete tumor removal of all radiographically visible lesions is possible is the procedure of choice, often resulting in a prolonged disease-free interval. However, because of the multifocal nature of the tumors in VHL, these patients are at high risk for recurrence and must be followed closely.

117. A ten-year-old boy has a perineal "butterfly" hematoma following a straddle injury. This suggests rupture of the:
A. tunica albuginea.
B. corpus spongiosum.
C. corpus cavernosum.
D. posterior urethra.
E. Colles' fascia.
ANSWER=B
Rupture of the corpus spongiosum and anterior urethra will be manifest by a perineal "butterfly" hematoma, limited by Colles' fascia. The corpora cavernosa, tunica albuginea, and posterior urethra are unlikely to be involved in a straddle injury. Posterior urethral injuries occur above the pelvic diaphragm are usually associated with a pelvic fracture, and not as a consequence of a straddle injury.

118. A 35-year-old man with recurrent calcium oxalate nephrolithiasis has a normal serum calcium and high urinary calcium. The best treatment is:
A. potassium citrate.
B. thiazide.
C. low calcium diet.
D. cellulose phosphate.
E. reduced dietary salt.
ANSWER=B
The patient's clinical findings are consistent with metabolic stone activity secondary to renal leak hypercalciuria. The most effective therapy for this is thiazide diuretics. The effect of thiazide diuretics may be blocked by high dietary salt intake or increased vascular volume.

119. A 32-year-old woman has an incidentally discovered asymptomatic 3 cm angiomyolipoma in the central portion of the right kidney. One year later, the mass has enlarged to 5 cm. The left kidney is normal and the serum creatinine is 0.9 mg/di. The next step is:
A. surveillance.
B. selective embolization.
C. partial nephrectomy.
D. simple nephrectomy.
E. radical nephrectomy.
ANSWER=B
Tumor size and symptoms are useful predictors of the clinical course of angiomyolipoma. Most tumors less than 4 cm rarely cause

significant symptoms. A recent review recommends annual CT or ultrasound studies for patients with isolated small tumors and semiannual follow-up for patients with tumors larger than 4 cm who are asymptomatic or mildly symptomatic. If the tumor grows, embolization or renal-sparing surgery should be considered. This lesion has grown. Its location makes it less amenable to partial resection, and a nephrectomy would sacrifice significant normal parenchyma. Selective arterial embolization is minimally invasive and can prevent future expected hemorrhage of this lesion. Although cryoablation or radiofrequency ablation have been attempted in this situation, they are considered experimental.

120. The inferior mesenteric artery is ligated during a RPLND for testis cancer. Blood supply to the sigmoid colon is now derived from which artery:
A. right colic.
B. superior hemorrhoidal.
C. middle hemorrhoidal.
D. sigmoid.
E. middle sacral.
ANSWER=C
The main arterial supply of the sigmoid colon is from the sigmoid and superior hemorrhoidal branches of the inferior mesenteric artery. The major collateral vessels are the middle and inferior hemorrhoidal arteries which arise from the internal iliac artery. They anastomose freely with the superior hemorrhoidal branches.

121. The principal source of operator radiation exposure during endourologic procedures is:
A. the primary radiation beam.
B. radiation leakage from the x-ray tube.
C. radiation scatter from the patient.
D. radiation scatter from endoscopic instruments.
E. radiation scatter from the operating room walls and floor.
ANSWER=C
Scattering of the primary beam from the patient is the primary source of radiation exposure to the operator during endourologic procedures. For this reason, maximizing the distance between the operator and the patient during fluoroscopy is a very effective method of reducing exposure.

122. Patients with metastatic renal cell cancer respond best to immunotherapy in the setting of:
A. bone metastases.
B. lung metastases.
C. good performance status.
D. liver metastases.
E. prior nephrectomy.
ANSWER=C
Biologic response modifiers have shown modest activity in patients with metastatic renal cell cancer. While lung metastases have responded better than other sites of metastatic diseases, the finding which is most predictive of a favorable response is performance status. Prior nephrectomy has not been proved to be a strong predictor of response to therapy.

123. The periurethral prostatic glands in a young man:
A. comprise the bulk of the prostate.
B. comprise a small portion of the prostate.
C. empty into the ejaculatory duct.
D. are derived from the Wolffian duct.
E. are vestigial remnants.
ANSWER=B
Embryologically the prostate develops from the urogenital sinus during the third fetal month. The prostate develops from mesoderm to form the inner zone while the outer zone develops from endoderm. These zones form concentric rings around the prostatic urethra. Generally speaking the inner zone eventually develops benign prostatic hyperplasia (BPH) and the outer zone is where cancers later form. In younger patients the periurethral glands within the prostate are not prominent since BPH has not yet developed.

124. Patients with cystine stones unresponsive to hydration and alkalization are best treated with:
A. N-acetylcysteine.
B. Tham-E.
C. alpha-mercaptopropionylglycine.
D. penicillamine.
E. acetohydroxamic acid.
ANSWER=C
Alpha-mercaptopropionylglycine (alpha-MPG) is an oral agent, first introduced in 1968, which reduces cystine stone formation. Approximately 25% of the oral dose appears in the urine and, like penicillamine, participates in thiol-disulfide exchange with cystine, thus increasing the latter's solubility. Alpha-MPG appears to be as effective as penicillamine in reducing cystine excretion and significantly reduces the individual stone formation rate, while entailing less significant toxicity. N-acetylcysteine is not effective orally. Tham-E is only used for percutaneous dissolution. Acetohydroxamic acid inhibits bacterial urease and is not indicated for cystine stones.

125. A 57-year-old woman on hemodialysis for ten years has gross hematuria and mild right flank pain. Urine cytology and culture are negative. CT scan reveals small kidneys bilaterally with multiple cysts. Cystoscopy reveals bloody efflux from the right ureteral orifice, clear efflux from the left orifice, and normal bladder mucosa. The next step is:
A. antibiotic therapy.
B. angioinfarction of the right kidney.
C. right nephrectomy.
D. needle biopsy of kidney.
E. repeat CT scan in six months.
ANSWER=C
Approximately one-third of patients on long-term hemodialysis develop cysts in end-stage kidneys, and less than 10% of this group will develop renal cell carcinoma. The patient in question has unilateral bleeding and no evidence of infection as a cause. Due to the increased risk of malignancy, right nephrectomy is recommended. A negative needle biopsy alone would not be sufficient to exclude tumor.

126. Dilated Cowper's ducts seen on urethrography are:
A. lateral to the membranous urethra.
B. posterior to the prostatic urethra.
C. anterior to the bulbous urethra.
D. posterior to the bulbous urethra.
E. posterior to the membranous urethra.
ANSWER=D
Cowper's glands are located on each side of the membranous urethra within the urogenital diaphragm. The duct of each is one inch long and passes through the urethral opening in the urogenital diaphragm along the posterior aspect of the bulbous urethra and opens into the posterior aspect of the bulb.

127. A 47-year-old man develops severe flank pain and gross hematuria following SWL for a 2 cm renal calculus. His vital signs remain stable. A CT scan of the abdomen reveals no hydronephrosis and a loculated subcapsular mass along the lateral aspect of the kidney. The next step is:
A. percutaneous drainage.
B. ureteral stent.
C. renal exploration.
D. epsilon aminocaproic acid (Amicar).
E. analgesics and observation.
ANSWER=E
Perirenal hematoma following shock wave lithotripsy may occur in as many as 5-10% of patients. However, it is clinically significant in less than 1 %. The hematoma is usually self-limiting. Subsequent absorption occurs over a 6-9-month period. Accordingly, conservative therapy alone is all that is indicated unless the patient is hemodynamically unstable. Interventional therapy is not indicated at this early stage.

128. In a patient with a clinical Stage I primary nonseminomatous germ cell tumor, which of the following histologic subtypes is predictive of relapse during surveillance:
A. teratoma.
B. teratocarcinoma.
C. embryonal cell carcinoma.
D. yolk sac carcinoma.
E. mixed germ cell tumor.
ANSWER=C

Relapse rate for patients with embryonal cell carcinoma, or malignant teratoma undifferentiated (MTU) in the British classification, is significantly higher than the other subgroups, with a failure rate of 40-50% in most series. Second highest was choriocarcinoma with a 33% failure rate, with teratocarcinoma having only a 7% relapse rate. Although the numbers are small, no patient with teratoma or yolk sac carcinoma has relapsed in Peckham's series.

129. The ductuli efferentes of the testis enter the:
A. seminiferous tubules.
B. caput epididymis.
C. cauda epididymis.
D. vas deferens.
E. rete testis.
ANSWER=B
Testicular tubules, organized into 200-300 conical tubules, drain into 20-30 tubuli recti which enter the rete testis, a network of ducts in the testicular mediastinum. At the upper end of the mediastinum, the ductuli efferentes emerge from the testis to enter the head (caput) of the epididymis. The cauda epididymis is the most distal portion of this organ from the testis.

130. A 70-year-old man with diabetes, atrial fibrillation, and congestive heart failure has right renal colic. An IVP shows a 1 cm right renal pelvic stone that is partially obstructing, and 2 left calyceal stones measuring 0.5 cm each. Over the next 36 hours, he is comfortable but voids only 50 ml. The most likely explanation is:
A. contrast induced nephropathy.
B. renal infarction.
C. bilateral ureteral obstruction.
D. dehydration.
E. renal vein thrombosis.
ANSWER=A
Acute renal failure after IVP may occur in 2 of 1000 diabetics as opposed to 0 in 100,000 nondiabetic patients. In addition, renal insufficiency and generalized atherosclerosis increase the risks of acute renal insufficiency related to the use of intravascular contrast. Theories of toxicity relate to direct toxic effects of the contrast media on the proximal tubular cells, ischemia from damage to the renal microvasculature, and hypertonicity of the contrast media causing nephrotoxicity. This risk may be reduced by hydration. Bilateral complete obstruction, renal vein thrombosis, and dehydration as causes for oliguria or anuria would be unusual in this situation.

131. A 20-year-old man has a 4 cm left testicular mass. Serum AFP is normal and beta-hCG is minimally elevated. He undergoes left radical orchiectomy. Histology demonstrates anaplastic seminoma with invasion of the rete testes. CT scan of the abdomen, pelvis, and chest is normal. Management should be:
A. surveillance.
B. bilateral retroperitoneal lymph node dissection.
C. systemic chemotherapy.
D. retroperitoneal external beam radiation.
E. left modified retroperitoneal lymph node dissection.
ANSWER=D
Anaplastic seminoma has a greater metastatic potential and worse prognosis than classic seminoma. However, stage for stage, it has comparable response rates to classic seminoma. This patient has clinical Stage I disease and should be treated with external beam radiation therapy to the retroperitoneum.

132. The most frequent histologic finding in the cryptorchid testis of a four-year-old boy is:
A. decreased number of germ cells.
B. increase in peritubular fibrosis.
C. late maturation of the Sertoli cell.
D. alteration of the tubular basement membrane.
E. decreased number of interstitial cells.
ANSWER=A
The most striking consistent change seen in the cryptorchid testis is decrease in number of germ cells due to failure of maturation of the germinal epithelium. Increase in peritubular fibrosis occurs from puberty onward. Very little difference is noted in the tubular basement membrane in the cryptorchid versus the normal testis. The delay in maturation of the Sertoli cells appears only in older children with cryptorchism, and decreased numbers of interstitial cells do not seem to be a feature of cryptorchism in general.

133. The most important factor to consider for percutaneous access to a continent urinary reservoir for removal of calculi is:
A. stone composition.
B. stone volume.
C. stone number.
D. adjacent structures.
E. type of diversion.
ANSWER=D
It is important to select the ideal puncture site for percutaneous access into a continent reservoir. Computed tomography or ultrasonography can be used to guide access to avoid injury to adjacent bowel.

134. A 32-year-old man has clinical Stage I seminoma of the left testis. At the time of radical orchiectomy, he undergoes a right testis biopsy because the right testis is atrophic. Biopsy of the right testis demonstrates testicular intra-epithelial neoplasia (CIS). The next step is 20 Gy to the retroperitoneum and:
A. right orchiectomy and androgen replacement.
B. platinum-based chemotherapy.
C. 20 Gy to the right testis.
D. serial testicular ultrasounds.
E. repeat testis biopsy in six months.
ANSWER=C
Involvement of the contralateral testis with intraepithelial neoplasia (CIS) occurs in 4-5% of patients with germ cell tumors. The presence of an atrophic contralateral testis appears to be a significant risk factor for this condition. While it is controversial, there does appear to be significant risk of developing tumor in the contralateral testis if left untreated. In an attempt to avoid bilateral castration, localized radiation was introduced in 1985 as treatment of CIS in the contralateral gonad. Radiotherapy eradicates CIS cells to prevent cancer development and to preserve sufficient Leydig cell function. 20-Gy has been shown to be highly effective and more effective than chemotherapy in this setting while preserving Leydig cell function in most patients.

135. Ectopic thoracic kidney is most commonly associated with:
A. anomalous vasculature.
B. contralateral UPJ obstruction.
C. vesicoureteral reflux.
D. no intrinsic pathology.
E. duplex drainage system.
ANSWER=D
Neither the thoracic kidney nor the contralateral orthotopic kidney are predisposed to an increased risk for obstruction or any pathologic disturbance. They are typically asymptomatic except for position and the renal vasculature is normal.

136. A 45-year-old woman undergoes evaluation for recurrent calcium phosphate stones. Serum calcium range from 9.6-10.0 mg/di (normal range 8.5-10.2 mg/di); PTH 62pg/di (normal < 65pg/di); urine calcium 281 mg/day (normal < 200 mg/day); and urinary citrate 460 mg/day (normal > 320 mg/day). To further elucidate her metabolic diagnosis, she should be placed on a two-week course of:
A. thiazides.
B. mercaptoproprinoglycine.
C. sodium cellulose phosphate.
D. orthophosphate.
E. potassium citrate.
ANSWER=A
This patient has a picture equivocal for primary hyperparathyroidism with hypercalciuria, serum calcium at the upper limits of normal and a high, but normal serum PTH value. A "thiazide challenge" would help to differentiate renal hypercalciuria from primary hyperparathyroidism. After treating her with a thiazide diuretic for two weeks, one would expect her serum calcium and PTH to remain within the normal limits and her urinary

137. In men with a history of surgically treated cryptorchidism, the factor which most influences the risk of developing testicular cancer is:

A. original location of testis.
B. gonocyte transformation failure.
C. testicular-epididymal nonunion.
D. carcinoma in situ.
E. age at orchiopexy.
ANSWER=D
The risk of testicular cancer in men with a history of cryptorchism has been adjusted downward in recent years to 1.1 percent with a relative risk of 4. 7. Approximately 15 to 20 percent of tumors occur in a contralateral descended testis. Carcinoma in situ is present in 1. 7 to 3 percent of previously cryptorchid testes and is postulated to originate within the fetal gonocytes. The correlation, if any, between failure of gonocyte transformation in infant cryptorchid testes and carcinoma in situ is unknown. The risk for subsequent development of testicular cancer in gonads that harbor carcinoma in situ is at least 50 per cent.

138. A five-year-old boy with hepatosplenomegaly develops progressive azotemia and a renal concentrating defect. Ultrasound of the kidneys demonstrates slight enlargement with multiple small (1-2 cm) cortical cysts. An uncle died of renal disease. The most likely diagnosis is:
A. familial juvenile nephronophthisis.
B. autosomal recessive polycystic kidney disease.
C. autosomal dominant polycystic kidney disease.
D. tuberous sclerosis.
E. renal-retinal dysplasia.
ANSWER=B
The presence of autosomal recessive polycystic kidney disease varies depending on age. In older children , hepatosplenomegaly due to portal hypertension may be prominent and associated with renal interstitial fibrosis and cortical cystic disease. Autosomal dominant polycystic disease does not usually cause renal insufficiency at such an early age and the cysts occur throughout the kidney. Familial juvenile nephronophthisis and renal -retinal dysplasia are associated with renal cysts which are typically located in the medulla but the kidneys are usually shrunken and scarred. Renal cysts do occur in tuberous sclerosis but renal failure is usually attributed to multiple solid angiomyolipomas.

139. The physiologic change during the third trimester of pregnancy that offers protection against kidney stone formation is:
A. increased ureteral peristalsis.
B. increased ureteral dilation.
C. increased urinary citrate.
D. decreased urinary calcium.
E. decreased urinary uric acid.
ANSWER=C
Although ureteral peristalsis does increase, and the ureters do dilate during pregnancy, neither of these physiologic changes are associated with decreased stone formation. During the third trimester of pregnancy, urinary citrate levels are known to increase dramatically. Urinary citrate is a potent inhibitor of calcium oxalate crystallization, and should help protect against stone formation. Neither hypocalciuria nor hypouricosuria are routinely associated with pregnancy.

140. A 19-year-old man has a 1 cm mass in the right testis. Inguinal orchiectomy is performed, and final pathology is pure choriocarcinoma. CT scan shows a 2 cm paraaortic node, and chest x-ray shows four small nodules within the right lower lung. Beta-hCG remains elevated postoperatively. The most appropriate management is:
A. biopsy of the lung lesions.
B. retroperitoneal node dissection and pulmonary resection.
C. systemic chemotherapy and radiation.
D. systemic chemotherapy alone.
E. bone marrow transplant and systemic chemotherapy.
ANSWER=D
With chest lesions, pure choriocarcinoma, and elevated beta-hCG, this patient has metastatic choriocarcinoma. This tumor, despite its small size, is very aggressive and can spread hematogenously as well as via lymphatics. Appropriate management is aggressive chemotherapy. Radiation does not have a place in management of this tumor.

141. A three-year-old child with a duplicated collecting system has reflux to the upper renal segment upon voiding. The most appropriate statement is:
A. this type of anomaly is commonly bilateral.
B. the ureter to the upper segment is probably ectopic.
C. the ureter to the lower segment is probably ectopic.
D. the ureter to the lower segment is probably obstructed.
E. reflux to the upper system occurs frequently with complete ureteral duplication.
ANSWER=B
With complete ureteral duplication, the upper pole ureter is more likely to have an ectopic insertion outside the bladder. Reflux is more common into the lower pole segment. Reflux into the upper pole moiety alone occurs in children when the orifice is ectopic in the bladder neck or urethra. The ureter lacks trigonal support and has an inadequate submucosa tunnel. This situation occurs in less than 10% of cases of complete ureteral duplication. Ureteral duplication, incomplete or complete, occurs in 0.8% of the population. As many as 40% of cases are bilateral, but most of these are insignificant partial ureteral duplications. Bilateral ectopic insertion of the upper pole ureter with reflux into this moiety alone is very rare.

142. The medication used for patients with HIV infection most likely to result in renal calculus disease is:
A. didanosine.
B. ritonavir.
C. indinavir.
D. acyclovir.
E. cidofovir.
ANSWER=C
Indinavir has been associated with crystalluria and renal calculus disease, especially with urine pH of greater than 5.5. Approximately 4-40% of patients taking indinavir have symptoms of clinical nephrolithiasis. Indinavir stones are the only ones that are not evident by KUB or noncontrast CT.

143. A 35-year-old man with Cushing's syndrome has an elevated plasma cortisol level that is not suppressed with high-dose dexamethasone. Urinary 17-ketosteroid and 17-hydroxysteroid levels are markedly elevated. The most likely diagnosis is:
A. pituitary adenoma.
B. ectopic ACTH production.
C. adrenal adenoma.
D. adrenal carcinoma.
E. anabolic steroid abuse.
ANSWER=D
Lack of suppression after high dose dexamethasone usually indicates an autonomous adrenal source of steroids. The high level of ketosteroids makes ectopic ACTH less likely (hydroxysteroids are usually preferentially increased). Exogenous anabolic steroids should not elevate hydroxysteroids. Elevated urinary ketosteroid levels in a patient with Cushing's syndrome is highly suggestive of adrenal malignancy.

144. A two-year-old girl has a palpable abdominal mass. CT scan demonstrates a 5 cm enhancing left renal mass. The right kidney is normal. The most appropriate treatment is:
A. percutaneous biopsy and chemotherapy.
B. left radical nephrectomy and postoperative chemotherapy.
C. left partial nephrectomy.
D. left radical nephrectomy and right renal biopsy.
E. preoperative chemotherapy and left radical nephrectomy.
ANSWER=B
This mass is most likely a Wilms' tumor. The guidelines of the National Wilms' Tumor Study Group recommends radical nephrectomy of the involved kidney. The use of partial nephrectomy in the management of a Wilms' tumor located in a polar region is not part of the standard protocols.

145. A 23-year-old woman has acute flank pain and hematuria during her first trimester of pregnancy. The study with the greatest radiation exposure to the fetus is:
A. IVU.
B. CT abdomen.
C. CT pelvis.
D. DTPA renal scan.

E. MAG-3 renal scan.
ANSWER=C
Fetal doses are highest for CT pelvis> CT abdomen> IVU > DTPA scan> KUB> MAG3 renal scan. CT pelvis is 25-80 mGy, abdomen 8-45mGy, DTPA 1.5-4mGy, MAG3 0.7mGy and IVU 1.7-10mGy.

146. A 40-year-old woman had bilateral total adrenalectomies for Cushing's disease after failed transsphenoidal hypophysectomy with complete resolution of symptoms and signs. Cortisol and fluorocortisone are given chronically. However, progressive hyperpigmentation and visual disturbances occur. This is most consistent with:
A. Addison's disease.
B. pituitary adenoma.
C. excessive glucocorticoid replacement.
D. residual functioning adrenal tissue.
E. ectopic melanocyte-stimulating hormone secretion.
ANSWER=B
Approximately 10-20% of patients who have bilateral adrenalectomy for Cushing's disease later develop pituitary tumors, almost always chromophobe adenomas (Nelson syndrome). Progressive hyperpigmentation, headache, and visual disturbances are due to the expanding adenoma that is shown by skull x-rays or CT scans of the sella turcica.

147. A two-year-old boy has a cystic left upper pole testicular mass on ultrasound. Inguinal excision of the lesion is done leaving the lower half of the testis. Final pathology reveals teratoma with clear margins. AFP and beta-hCG are negative. Chest and abdominal CT scans are negative. The next step is:
A. observation.
B. radical orchiectomy.
C. radical orchiectomy and systemic chemotherapy.
D. radical orchiectomy and modified RPLND.
E. systemic chemotherapy.
ANSWER=A
The diagnosis of teratoma of the testis can be suspected on preoperative ultrasound. This allows the surgeon to consider a testis sparing procedure. Prepubertal teratomas have a benign clinical course and can be managed with surgery only. Although only a limited number of patients have been treated with enucleation of the tumor, there have been no recurrences reported to date. Theoretical concerns include tumor seeding, incorrect diagnosis, or multifocal microscopic disease within the testis. However, frozen section diagnosis of teratoma is straightforward due to the characteristic histologic features of the tumor. In addition, a detailed review of 21 cases of prepubertal teratoma at the Armed Forces Institute of Pathology did not reveal evidence of multifocal disease or carcinoma in situ of the adjacent testis.

148. The primary advantage of using frozen semen rather than fresh semen for in vitro fertilization with donor sperm is:
A. improved implantation rates.
B. improvement in embryonic vitality scores.
C. increased number of cryopreservable spare embryos.
D. decreased risk of HIV transmission.
E. decreased number of insemination cycles required to achieve a pregnancy.
ANSWER=D
Recent concerns over the transmission of sexually transmitted diseases by donor insemination have led to the use of frozen donor sperm, which permits quarantine of frozen sperm with rescreening of donors. The price for this increased safety is a low per cycle pregnancy rate, largely due to decreased motility of frozen-thawed donor sperm. The number of insemination cycles required to achieve a pregnancy may increase, although the cumulative pregnancy rates appear to be the same as with fresh semen.

149. The superficial inguinal lymph nodes are separated from the deep inguinal lymph nodes by:
A. sartorius muscle.
B. Cooper's ligament.
C. adductor longus muscle.
D. fascia lata.
E. pectineus muscle.
ANSWER=D
The superficial inguinal lymph nodes anastomose with the deep inguinal lymph nodes, which are located below the fascia lata. The other structures given are encountered in an inguinal lymph node dissection but do not serve to separate the superficial and deep inguinal lymph nodes.

150. A 17-year-old boy undergoes evaluation for delayed puberty. He is above average height, has bilateral small testes, and gynecomastia. Serum FSH and LH are elevated and testosterone is low. This patient is at increased risk for:
A. prostate cancer.
B. seminoma.
C. Sertoli cell tumor.
D. breast cancer.
E. gonadoblastoma.
ANSWER=D
This patient has Klinefelter's syndrome which is characterized by small firm testes, varying degrees of impaired sexual maturation, azoospermia, gynecomastia and elevated gonadotropins. The fundamental defect is an extra X chromosome. The common chromosomal pattern is 47, XXY (classic form) or 46, XY/47, XXY. This disorder is the most common major abnormality of sexual differentiation with an incidence of 1 in 500 males. They usually come to attention after the time of expected puberty and often are diagnosed incidentally. Gynecomastia is dependent on the ratio of circulating estrogen/androgen. The risk of breast cancer is 20 times that in normal men, although the incidence is only about one-fifth that in women.

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1. Transcatheter arterial embolization is an acceptable alternative to pretransplant native nephrectomy for patients with:

A. Goodpasture syndrome.
B. severe proteinuria.
C. vesicoureteral reflux.
D. symptomatic polycystic kidneys.
E. a history of pyelonephritis.
ANSWER=B
Current indications for pretransplant nephrectomy may include hypertension not controlled by dialysis and medication, persistent renal infection, renal calculi, or renal obstruction. Additional indications include severe proteinuria or polycystic kidneys symptomatic from infection, severe bleeding, or massive enlargement. Of these indications for pretransplant nephrectomy, only severe proteinuria can safely and reliably be managed by pretransplant transcatheter embolization and infarction.

2. Two days after undergoing SWL for a 2 cm right renal pelvic stone, a 38-year-old man has fever to 101.5° F, flank pain, nausea and vomiting. An IVP shows delayed excretion into a moderately dilated right collecting system with contrast to the level of the distal ureter where an obstructing 3 cm column of fragments is present. There is a 5 mm lead fragment at the distal end of the steinstrasse. The next step is:

A. percutaneous nephrostolithotomy.
B. SWL of the lead fragment.
C. ureteroscopy and laser lithotripsy.
D. ureteral stent.
E. percutaneous nephrostomy.
ANSWER=E
If an obstructing stone is potentially associated with urinary infection, urgent drainage of the obstructed system is recommended. Because of potential difficulty negotiating a stent beyond the obstructing column of fragments, percutaneous nephrostomy is advisable. After adequate decompression of the obstructed collecting system and appropriate treatment of the infection or demonstration of sterile urine, definitive treatment with ureteroscopy or shock wave lithotripsy of the lead fragment is indicated. In some cases, the fragments will pass spontaneously after placement of the nephrostomy tube

3. Compared with radical perineal prostatectomy, radical retropubic prostatectomy provides a wider surgical margin:

A. laterally.
B. anteriorly.
C. apically.
D. at the bladder neck.
E. at the seminal vesicles.
ANSWER=B
Virtually identical margins can be achieved using the perineal approach as in retropubic prostatectomy except anteriorly. Traditionally, the dorsal vein complex and associated tissues are left on the anterior aspect of the retropubic prostatectomy specimen. Conversely, in the perineal approach, the dorsal vein complex is not ligated and the plane of dissection lies between the dorsal vein complex and the anterior aspect of the prostate, the impact of this difference upon surgical tumor control is unknown.

4. A 56-year-old man has a well-functioning cadaveric renal transplant. He is an insulin- dependent diabetic and develops chronic symptomatic urinary retention. Bladder emptying does not improve with alpha-adrenergic blockade or TURP. The most appropriate management is:

A. sterile intermittent catheterization.
B. clean intermittent catheterization.
C. prostatic stent.
D. repeat TURP.
E. bethanechol.
ANSWER=B
Clean intermittent catheterization is the treatment of choice for chronic nonobstructive urinary retention. The risks and complications of this management are not significantly greater in transplant recipients than in patients with normally functioning kidneys.

5. Which urine sample should be collected for pH testing to establish the diagnosis of renal tubular acidosis:

A. fasting.
B. postprandial.
C. diurnal.
D. nocturnal.
E. hydrated.
ANSWER=A
Initial screening for renal tubular acidosis can be done by measuring the pH of the second voided morning urine specimen after the patient has fasted overnight. The second voided specimen is better than the first because the first voided specimen may have an elevated pH as a result of pre-fasting food intake.

6. A seven-year-old boy has encopresis, enuresis and delayed motor development. Physical examination, urinalysis, and renal sonogram are normal. A KUB is shown in the exhibit. The next step is:

A. observation.
B. timed voiding and voiding diary.
C. enemas and oral laxatives.
D. spinal MRI scan.
E. cystoscopy.

ANSWER=D
This child has a Scimitar sacrum, a congenital defect that is almost always associated with a tethered cord. A spinal MRI scan is necessary. Timed voiding and a voiding diary can be helpful but do not supplant the need for an MRI scan. More common spinal skeletal defects such as spina bifida occulta do not require further radiographic assessment.

7. A 32-year-old muscular man with a BMI of 31 underwent a prolonged left transperitoneal laparoscopic donor nephrectomy in the lateral decubitus position. Two hours later, he has increasing right flank pain and swelling. There is reddish discoloration in the flank. His urine is brownish-red with 200 cc output since surgery. The next step is:

A. electrolytes and creatine kinase.
B. coagulation studies.
C. I.V. ketorolac.
D. I.V. vancomycin.
E. immediate re-exploration.
ANSWER=A
The body mass index (BMI) is calculated by dividing the weight in kilograms by the height in meters squared. The ideal BMI is 25 or

less, greater than 30 is moderately obese, and greater than 35 is defined as morbid obesity. A BMI of greater that 35 is usually a contraindication to living renal donation. The most likely diagnosis is rhabdomyolysis due to ischemic necrosis of the flank muscles and resultant myoglobinuria. The diagnosis is confirmed by measurement of the serum creatine kinase or urinary myoglobin. The best treatment is vigorous hydration and diuresis. Alkalinization has also been described in the treatment but has not been proven to be beneficial. Some patients will develop acute renal failure and may need supportive dialysis.

8. The metabolic defect primarily responsible for urolithiasis in a patient with short bowel syndrome is:
A. systemic acidosis with hypocitraturia.
B. enteric hyperoxaluria.
C. hypomagnesiuria.
D. secondary hyperparathyroidism.
E. absorptive hypercalciuria.
ANSWER=B
The hyperoxaluria in this syndrome results from fat malabsorption which leads to saponification of enteric calcium. As such, there is not enough enteric calcium to effectively bind enteric oxalate. Accordingly, oxalate remains in a more soluble state and is absorbed in the colon. In addition, the presence of bile acids and fatty acids in the colon appears to increase the permeability of the colon to oxalate.

9. A 31-year-old man has several small, asymptomatic papules on the distal shaft of the penis. Biopsy of one of the lesions reveals Bowenoid papulosis. The next step is:
A. observation.
B. laser ablation.
C. topical 5-FU.
D. wide excision of lesions.
E. Mohs surgery.
ANSWER=A
Bowenoid papulosis differs from other types of squamous cell carcinoma in-situ by earlier onset (mean age: 28 years), multifocality, location primarily on the shaft, smaller size (2-10 mm), and papillary appearance. The clinician must be aware of this distinct entity because of its indolent behavior and spontaneous regression in many patients. These patients should be carefully observed. Radical therapy, including laser ablation, wide local incision, partial penectomy, or total penectomy, is not indicated.

10. Urinary incontinence following radical prostatectomy most frequently results from functional deficiency of the:
A. levator ani muscle.
B. bladder neck.
C. proximal urethral musculature.
D. rhabdosphincter.
E. bulbocavernosus muscle.
ANSWER=D
Deficiency of the periurethral rhabdosphincter is the basis for urinary incontinence following radical prostatectomy. The rhabdosphincter consists of type I slow twitch striated muscle fibers that contract slowly yet provide sustained tone. The bladder neck is not a major zone of sphincteric competence after radical prostatectomy, and the intrinsic smooth musculature of the proximal urethra is not a urinary continence mechanism. The levators are fast twitch type II striated muscles, designed to contract forcefully, rapidly, and for a short duration affording only voluntary interruption of the urinary stream without sustained continence.

11. The predominant renal histologic change noted in experimental studies after SWL is:
A. glomerulosclerosis.
B. tubular necrosis.
C. proliferative nephritis.
D. interstitial fibrosis.
E. nephrosclerosis.
ANSWER=D
Extracorporeal shock wave lithotripsy results in acute disruption of the diminutive arcuate veins and resultant interstitial hemorrhage within the focal area of the shock wave. As the acute injury resolves, a focus of interstitial fibrosis develops. This area of damage usually accounts for well under 1% of the total functional area of the kidney and as such is undetectable by commonly performed differential renal function studies. Glomerulosclerosis, proliferative nephritis, and nephrosclerosis are not associated with the injury incurred by SWL. Tubular necrosis may occur as part of the larger process of interstitial fibrosis.

12. A 76-year-old man has hip pain after a fall. Seven years ago, he had a bilateral orchiectomy for T3 prostate cancer. A plain film demonstrates a nonpathologic fracture. PSA is undetectable. The next step is:
A. observation.
B. bone scan.
C. bone densitometry.
D. antiandrogen.
E. local radiotherapy.
ANSWER=C
This man by virtue of his age and androgen deprivation therapy is at increased risk for osteoporosis. The consequence of osteoporosis is an increase in bone fragility and a susceptibility to fracture. Androgen deprivation therapy increases the risk of osteoporosis and is related to the duration of therapy. Compared to age-matched controls, men on ADT have 6.5% to 17.3% higher bone loss. Furthermore, the risk of non-pathologic fracture with ADT is 4% at 5 years and 20% at 10 years. DEXA scan is the gold standard for diagnosis of osteoporosis, and is reported as compared to young adults (T-score) and age-matched (Z- score) controls. The treatment initially includes increasing physical activity on weight bearing joints and the addition of both Vitamin D and calcium. Since this patient has no clinical evidence of disease progression, there is no indication for additional treatment.

13. COX-2 inhibitor administration alters ureteral function by:
A. decreasing contractility.
B. increasing sensitivity of nociceptors.
C. decreasing arachidonic acid levels.
D. reducing 15-hydroxyprostaglandin dehydrogenase activity.
E. increasing cyclooxygenase activity.
ANSWER=A
Cyclooxygenase type 2 (inducible-COX-2) inhibitors reduce ureteral colic by reducing production of PGH2 from arachidonic acid while allowing the continued activity of cyclooxygenase type 1 (constitutive- COX-1). This affects the ureter by decreasing ureteral contractility and the sensitivity of nociceptors.

14. A 65-year-old woman on warfarin for recurrent pulmonary emboli has cystitis. The drug least likely to cause enhanced anticoagulation:
A. tetracycline.
B. nitrofurantoin.
C. ciprofloxacin.
D. chloramphenicol.
E. sulfamethoxazole.
ANSWER=B
All of the following drugs may enhance the hypoprothrombinemic response to oral anticoagulants: allopurinol, aminoglycosides, aminosalicylic acid, chloramphenicol, cimetidine, ethacrynic acid, indomethacin, isoniazid, metronidazole, miconazole, nalidixic acid, oxyphenbutazone, phenylbutazone, propoxyphene, salicylates,

sulfonamides, tetracyclines, trimethoprim-sulfa-methoxazole, and Vitamin E. The semi-synthetic beta-lactam penicillins such as carbenicillin, ticarcillin, mezlocillin, and piperacillin may produce coagulation defects at high doses, especially in the presence of renal impairment, lodinated contrast material may also produce transient abnormalities in clotting. Broad spectrum antibiotics, particularly when administered orally, may disrupt the gut flora and alter Vitamin K synthesis. Drugs such as allopurinol and metronidazole inhibit the hepatic metabolism of oral anticoagulants. Drugs such as ethacrynic acid, nalidixic acid, and sulfonamides displace oral anticoagulants from proteins and increase the amount of circulating anticoagulan

15. A 54-year-old woman undergoes an ileocecal pouch cutaneous urinary diversion two years after pelvic radiation for cervical cancer. Four months later, she has right lower quadrant pain and fecaluria. A pouchogram reveals contrast extending into the colon adjacent to the pouch. The next step is:

A. hyperalimentation.
B. bilateral nephrostomy drainage.
C. pouch endoscopy and fulguration of fistula.
D. catheter drainage and low residue diet.
E. colonoscopy.

ANSWER=D

Entero-conduit fistulas have been reported after ileal and right colon conduit urinary diversion. The diagnosis should be suspected in patients who present with gastrointestinal symptoms and metabolic acidosis. They are most common after pelvic irradiation. Conservative therapy is often effective with low residue diet and continuous pouch drainage. Further diagnostic evaluation with colonoscopy or pouch endoscopy is of little value, and biopsy or fulguration may enlarge the fistula. Open surgical exploration may be required if this regimen fails.

16. The factor most responsible for ureteral dilation during pregnancy is:

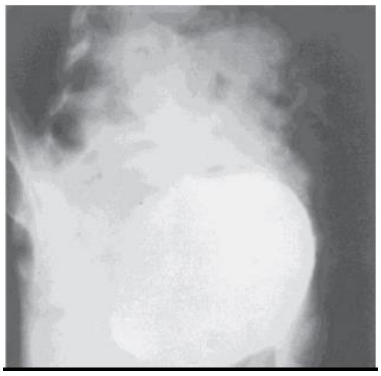
A. mechanical compression by the uterus.
B. elevated estradiol levels.
C. elevated progestin levels.
D. placental hormones.
E. increased urine flow.

ANSWER=A

Dilation of the ureter occurs commonly during pregnancy and is most prominent by the 22nd to 24th week. Although various experiments have suggested that estrogens, progestins, placental hormones and increased GFR may play a role in the dilation, mechanicalcompression is the most significant factor. Indeed, quadrupeds have a lower incidence of ureteral dilation during pregnancy than bipeds.

17. A six-year-old girl with recurrent symptomatic UTIs has a normal renal ultrasound. A VCUG is shown in the exhibit. The next step is prophylactic antibiotics and:

A. timed voiding.
B. urethral meatotomy.
C. internal urethrotomy.
D. urethral dilation.
E. alpha-blockers.



ANSWER=A

The VCUG is normal. Formerly, a dilated urethra proximal to the meatus in a voiding cystogram in a female was thought to represent distal urethral stenosis. However, on another frame of this voiding cystogram, as is commonly seen, the urethra is of uniform caliber from the bladder neck to the urethral meatus. In addition, no correlation exists between the size of the urethral meatus, the radiographic picture, and the incidence of urinary infection in girls. Controlled studies have shown that instrumentation, whether it be by meatotomy, internal urethrotomy or urethral dilation, has no effect on the recurrence rate of urinary infections. Therefore, the correct answer is prophylactic antibacterial therapy which may be aided by a timed-voiding regimen.

18. A 69-year-old man has T2b Gleason 7 (4+3) prostate cancer and a prostate volume of 30 cc. PSA is 16.5 ng/ml. CT scan of the pelvis and bone scan are negative. He has elected radioactive seed implantation. The most appropriate treatment regimen is:

A. 125l implant alone.
B. 103P implant alone.
C. leuprolide and seed implant.
D. seed implant and external beam radiation.
E. leuprolide, seed implant and external beam radiation.

ANSWER=E

The protocol for radiation implant therapy will depend on the particular parameters for each patient to include clinical stage, serum PSA level, and Gleason score. A patient with a stage T2b Gleason 7 (4+3) and PSA greater than 15 would be considered a high risk patient. He would therefore be treated with hormone ablation, an implant and external beam radiation therapy.

19. The majority of ejaculatory fluid originates in the:

A. prostate.
B. ejaculatory ducts.
C. seminal vesicles.
D. Cowper's glands.
E. testes.

ANSWER=C

The human ejaculate contains spermatozoa and seminal plasma. The latter encompasses secretions from the prostate, seminal vesicles, Cowper's glands and the glands of Littre. The majority of this fluid (approximately 3 ml) originates in the seminal vesicles.

20. A 72-year-old woman has had six urinary tract infections over the past year. These infections return shortly after antibiotic courses are concluded, and cultures have demonstrated significant colony counts of E. coli. Renal sonogram is normal. The next step is:

A. ciprofloxacin prophylaxis.
B. nitrofurantoin prophylaxis.
C. oral low dose estrogen.
D. intravaginal estrogen.
E. lactobacillus.

ANSWER=D

The efficacy of estrogen for the prevention of urinary tract infections in post-menopausal women has been demonstrated in several studies.

There appears to be a higher effectiveness rate in topically applied estrogen in the vagina with an improvement in lactobacillus concentrations, decreased vaginal pH and a decrease in urinary tract infection episodes from 5.9 to 0.5 episodes per year. Antimicrobial prophylaxis should be used at low dose, if used, and cranberry juice, while studied extensively, does not seem to decrease the frequency of urinary tract infections as effectively as topical estrogen. Lactobacillus probiotics, while effective in an investigational setting, have not been subject to the scrutiny of controlled trials.

21. The most substantial risk of mitoxantrone therapy for prostate cancer is:
A. cardiotoxicity.
B. myelosuppression.
C. pulmonary toxicity.
D. hepatotoxicity.
E. renal toxicity.
ANSWER=A
The most devastating complication of mitoxantrone therapy is cardiotoxicity, which can lead to a cardiomyopathy that can be debilitating. Patients with symptoms should be screened with a MUGA scan to confirm good LV function prior to initiating therapy, and they should be monitored carefully during and after therapy. An echocardiogram should be obtained if new symptoms develop. With careful patient selection, this complication should only be observed in 2-5% of patients.

22. In a chronically obstructed ureter, impaired urine transport is primarily due to decreased:
A. ureteral wall tension.
B. intraluminal resting pressure.
C. intraluminal contractile pressure.
D. pacemaker coupling.
E. ureteral dimension.
ANSWER=C
Several effects are observed with ureteral obstruction. At onset, there is an increase in baseline (resting) ureteral intraluminal pressure. An initial increase in intraluminal contractile pressure causes the increase in ureteral dimensions. A transient increase occurs in the amplitude and frequency of the peristaltic contraction waves. Over time, the relative difference in contractile pressures over resting pressures diminishes. Contractile frequency decreases over time but amplitude is preserved. Obstruction also alters pacemaker coupling causing discoordination of peristaltic activity.

23. The treatment of idiopathic oligospermia with human chorionic gonadotropin is most likely to result in:
A. elevation of serum testosterone.
B. increased sperm concentration.
C. improved sperm motility.
D. increased pregnancy rate.
E. increased seminal volume.
ANSWER=A
Treatment of oligospermic patients with human chorionic gonadotropin does not generally achieve consistent improvement in sperm concentration, sperm motility, or pregnancy rate. Estradiol and testosterone levels do rise, however.

24. The best predictor of long-term disease-free survival after salvage prostatectomy is:
A. Gleason score < 8.
B. serum PSA nadir < 0.5 ng/ml.
C. non-palpable tumor.
D. serum PSA velocity < 2.0 ng/ml/year.
E. serum PSA < 10 ng/ml.
ANSWER=E
The best predictor of outcome after salvage prostatectomy is serum PSA level of < 10 ng/ml. Patients with PSA of < 10 ng/ml are much more likely to have favorable pathological findings and to maintain biochemical disease free status on long-term surveillance. In contrast, clinical stage and tumor grade were not as reliable predictors of outcome in the salvage setting. PSA nadir of < 0.5 ng/ml is an excellent predictor of outcomes after definitive radiation therapy but has no predictive value for patients that have failed RT and are considering salvage prostatectomy.

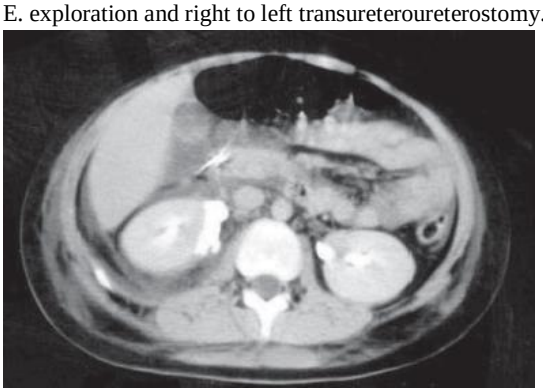
25. Epsilon-aminocaproic acid (Amicar) is useful in treating post-prostatectomy hemorrhage by:
A. increasing production of fibrin from fibrinogen.
B. increasing production of plasmin from plasminogen.
C. decreasing activation of plasminogen by urokinase.
D. decreasing production of fibrinogen.
E. decreasing production of urokinase.
ANSWER=C
The mechanism of epsilon-aminocaproic acid (Amicar) is to establish a clot that is resistant to the urokinase effect on plasminogen; which produces plasmin, a proteolytic enzyme with a high specificity for fibrin.

26. A 36-year-old infertile man had a right inguinal herniorrhaphy at age four years and a left varicocelectomy three years ago. His testicular volume is 30 ml on the right and 16 ml on the left without evidence of a varicocele. Semen analysis reveals normal ejaculate volume, 3 million sperm/ml, and 20% motility. Serum FSH is normal and antisperm antibody testing is positive. The next step is:
A. bilateral testicular biopsy.
B. scrotal color Doppler ultrasonography.
C. scrotal exploration and vasography.
D. transrectal ultrasonography.
E. venography.
ANSWER=C
The patient has severe oligospermia with unilateral testicular atrophy and a normal serum FSH. This constellation of clinical findings and a history of prior inguinal surgery on the side of a normal sized testis suggests the possibility of unilateral vasal obstruction. The few sperm seen on semen analysis may be coming from the unobstructed atrophic left testis. The finding of active spermatogenesis upon testicular biopsy is not diagnostic for obstruction in oligospermic patients as is the case in azoospermia. Scrotal exploration and vasography is the only method that will accurately establish the diagnosis of obstruction.

27. A 68-year-old woman has nocturia x3, persistent suprapubic pain, urgency and daytime frequency after her third BCG instillation for recurrent Stage Ta bladder cancer. A urinalysis reveals 5-10 RBC and 10-20 WBC/hpf. A urine culture is negative. The next step is:
A. space remaining treatments two weeks apart.
B. ciprofloxacin.
C. decrease weekly intravesical dose of BCG by 50 percent.
D. oral isoniazid therapy with BCG treatments.
E. oral oxybutynin.
ANSWER=E
BCG cystitis is a common side effect of BCG therapy. A possible bacterial infection should also always be considered. Quinolone antibiotics are not indicated with a negative urine culture and actually may have some negative effect on the BCG. Similarly, antitubercular medications would abrogate the effectiveness of BCG and add the risk of hepatotoxicity. A decrease in dose intensity may hamper therapeutic efficacy. The patient's symptoms are mild to moderate and are best treated with an anti-spasmodic agent during the course of therapy.

28. A 12-year-old boy sustains a flexion-extension injury to the spine and has gross hematuria following a motor vehicle accident. A CT scan is shown in the exhibit. There is no contrast seen in the distal ureter. The next step is:

A. observation.
B. flank exploration and nephrectomy.
C. placement of percutaneous nephrostomy.
D. retrograde pyelogram and repair of injury.
E. exploration and right to left transureteroureterostomy.



ANSWER=D

This exhibit demonstrates extravasation of contrast medial to the kidney. When this finding is noted on CT scan without perinephric hematoma or fracture, one has to suspect UPJ disruption particularly in a child. This injury should be treated promptly. If observation is elected, then it most likely will heal with stricture and subsequent obstruction. The best approach for management of this patient is to perform retrograde pyelography to confirm the injury. This should then be followed by exploration and reconstruction of the injury.

29. A 30-year-old man underwent a unilateral orchiectomy and received two cycles of cisplatin-based chemotherapy for a high-risk Stage I nonseminomatous germ cell tumor. Two years after treatment, he is likely to have:

A. decreased fertility and erectile function.
B. no change in fertility and decreased erectile function.
C. decreased fertility and ejaculatory dysfunction.
D. decreased fertility and no change in erectile function.
E. no change in fertility or erectile function.

ANSWER=E

There is a 98% cure rate for patients with clinical stage I nonseminomatous germ cell tumors. Concern regarding post-surgical and post chemotherapy fertility and sexual activity status is high in this relatively young cohort of patients. Two cycles of cisplatin-based chemotherapy after orchiectomy has no adverse impact on fertility status and sexual activity when compared to their pre surgical and pre chemotherapy status.

30. A 65-year-old patient receives two consecutive six-week courses of intravesical BCG for a Grade III T-1 transitional cell carcinoma of the bladder. One year after his last BCG dose, cystoscopy and biopsy demonstrate recurrent high Grade T1 disease. The next step is:

A. radical cystoprostatectomy.
B. repeat transurethral resection.
C. intravesical mitomycin C.
D. intravesical alpha interferon.
E. six weeks of BCG followed by maintenance therapy.

ANSWER=A

Failure with high grade superficial disease after two-six-week courses of BCG is a poor prognostic indicator. These patients are at high risk for disease progression and death. Patients failing BCG in the first two years appear to be at a particular risk. Repeat TUR is unnecessary as this man should undergo cystectomy whether or not he has invasive disease. Interferon alone has minimal efficacy in this high-risk patient.

31. The nephrotoxic effect of cisplatin is due to:

A. efferent arteriolar constriction.
B. afferent arteriolar constriction.
C. pre-existing plasma volume contraction.
D. a direct toxic effect on renal tubular cells.
E. renal tubular obstruction from drug precipitation.

ANSWER=D

Cisplatin nephrotoxicity is due to a direct toxic effect of the drug on renal tubular cells. Azotemia and dehydration are predisposing conditions which increase the risk of this complication. Cisplatin is not precipitated in the renal tubules nor does it affect glomerular hemodynamics.

32. A 27-year-old couple has not conceived after one year of appropriately timed intercourse. The man has a sperm count of 30 million with 60% motility and 20% strict normal morphology. The women has normal ovulation and menstruation. She has no history of pelvic infections or abdominal surgery. The chance of spontaneously conceiving in the next year is:

A. 5%.
B. 10%.
C. 25%.
D. 50%.
E. 80%.

ANSWER=D

90% of couples conceive in the first year of trying. After two years it is 95%. One half of couples not conceiving in the first year will conceive in the second. These rates are affected by age and other factors but are appropriate to this couple.

33. A 68-year-old man receives two six-week courses of intravesical BCG for recurring superficial bladder tumors. He is asymptomatic, but a new firm area in the prostate gland is noted on digital rectal examination. The serum PSA is 3.1 ng/ml. A transrectal ultrasound-guided biopsy of the prostatic lesion reveals a caseating granuloma. The most appropriate management is:

A. observation.
B. isoniazid for six months.
C. cycloserine for six weeks.
D. isoniazid and rifampin for three months.
E. isoniazid, rifampin, and cycloserine for six months.

ANSWER=A

This asymptomatic patient has developed granulomatous prostatitis. This is a common condition following intravesical BCG therapy that requires no further intervention. The other more common side effect associated with intravesical BCG therapy is bladder irritability. This symptom complex includes dysuria (91%), urinary frequency (90%), hematuria (46%), fever (24%), malaise (18%), nausea (8%), chills (8%), arthralgia (2%), and pruritus (1%).

34. Six months following implantation of an artificial sphincter, a 22-year-old myelodysplastic man has bilateral ureteral dilation by ultrasound. The diagnostic study most likely to reveal the cause of the problem is:

A. CMG.
B. diuretic renogram.
C. antegrade pressure/perfusion study.
D. repeat ultrasound after catheter drainage.
E. IVP.

ANSWER=A

Bladder pressure adversely influences ureteral function. In this case, bladder pressure owing to the artificial sphincter is likely to have increased since this phenomenon has been reported in many similar patients. A CMG should be done first to exclude this before upper tract studies are repeated.

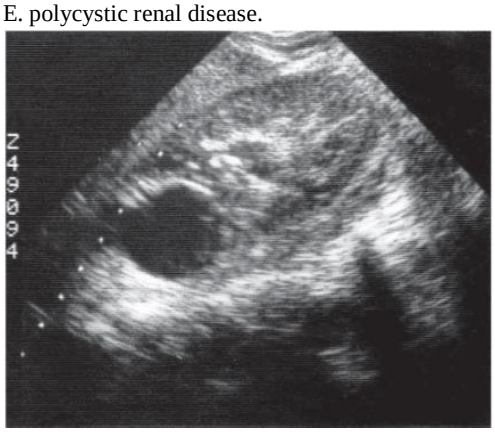
35. Necrotizing fasciitis of the external genitalia in men is most frequently associated with invasive infections of the:
A. epididymis.
B. urethra.
C. prostate.
D. preputial skin.
E. testis.
ANSWER=B
Necrotizing soft tissue infections of the genitalia are most often due to perirectal infections, urethral stricture disease and skin trauma. Numerous causative organisms may be identified, including aerobic and anaerobic gram positive cocci, gram negative bacteria and other anaerobes. Patients with diabetes, alcoholism, obesity and immunosuppression are at increased risk of such infections. Aggressive treatment including the use of broad-spectrum antibiotics, early debridement, and meticulous wound care are essential in order to limit morbidity and mortality.

36. A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with intravesical BCG therapy for a superficial transitional cell carcinoma of the bladder, and has not had any tumor recurrence. The TUR specimen reveals benign prostatic hyperplasia and transitional cell carcinoma in situ of the prostatic urethra. There is no evidence of ductal or stromal invasion. The most appropriate management is:
A. repeat BCG therapy.
B. mitomycin C therapy.
C. repeat TURP.
D. cystoscopy and cytology in three months.
E. radical cystoprostatectomy and urethrectomy.
ANSWER=A
Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial transitional cell carcinoma of the bladder. If the recurrence is confined to the prostatic urethral mucosa, it may be completely eradicated by the TURP. However, radical cystoprostatectomy is necessary if the tumor recurrence involves prostatic stroma, or glands. Urethrectomy or very careful follow-up, also is indicated in the latter circumstance.

37. An intoxicated 45-year-old man is evaluated in the emergency room for abdominal pain. Physical examination reveals no abnormalities other than ecchymoses over the lower abdomen. The BP is 160/80 mm Hg, pulse 70, respirations 20, temperature 37.5° C. A plain film of the abdomen shows a "ground glass" appearance. Initial blood studies reveal: HCT 32%, WBC 15,800, Na 122mEq/l, K 6.0mEq/l, CI 109mEq/l, C0 2 13mEq/l, BUN 80 mg/dl, and creatinine 4.3 mg/dl. A Foley catheter is placed but there is no urinary output. The next step is:
A. Kayexalate and furosemide.
B. cystogram.
C. renogram.
D. non-contrast CT scan.
E. paracentesis.
ANSWER=B
Hyperkalemic, hyperchloremic metabolic acidosis is consistent with peritoneal absorption of urine. The ground glass appearance also suggests urinary extravasation. A ruptured bladder with intraperitoneal or retroperitoneal extravasation of urine may produce minimal symptoms. The combination of hyperkalemic, hyperchloremic metabolic acidosis, elevated BUN and creatinine, anuria, and evidence of abdominal trauma should clearly suggest urinary extravasation. A cystogram or CT cystogram are the best tests to diagnose intraperitoneal bladder rupture. A renogram, noncontrast CT scan, or pelvic tap are not indicated in this scenario. While the Kayexalate is useful in reducing the patient's serum potassium, the administration of Lasix inducing further extravasation of urine into the abdominal cavity may further compound the problem.

38. The efficacy of amphotericin B bladder irrigations for localized Candidal infection is reduced by:
A. an alkaline urine.
B. concomitant use of sulfonamide therapy.
C. an acid urine.
D. use of non-siliconized catheters for drainage.
E. presence of bacterial infection in the urine.
ANSWER=C
The ideal pH for growth of Candida fungi ranges from 5.1 to 6.4. Alkalinization of the urine may help resolve candiduria.

39. A seven-year-old girl has a UTI. A longitudinal renal ultrasound is shown in the exhibit. The diagnosis is:
A. ureteropelvic junction obstruction.
B. duplication with upper pole hydronephrosis.
C. multicystic renal dysplasia.
D. acute lobar nephronia.
E. polycystic renal disease.



ANSWER=B
The longitudinal renal ultrasound shown in the exhibit demonstrates a normal echo pattern in the lower portion of the kidney. The fluid-filled, echo-free mass in the upper pole is consistent with hydronephrosis of an upper pole duplicated collecting system.

40. A 58-year-old man has incontinence and prolonged urination six months following radical retropubic prostatectomy. Urodynamic evaluation with a 10 Fr catheter demonstrates normal bladder capacity and no detrusor instability. At 250 ml, Valsalva maneuver increases bladder pressure to 150 cm H2O without evidence of urinary leakage. The etiology of the incontinence is best determined by:
A. remove catheter and repeat Valsalva maneuver.
B. repeat urodynamic study with suprapubic catheter.
C. uroflowmetry.
D. retrograde urethrogram.
E. cystoscopy.
ANSWER=A
The patient most likely has an anastomotic stricture and stress incontinence. The 10 Fr catheter is occluding the bladder neck, preventing demonstration of stress incontinence. A repeat urodynamic study with a suprapubic catheter is not necessary since the bladder capacity is known to be normal and there is no evidence of instability. A cystoscopy and retrograde urethrogram would demonstrate the stricture, however these studies would not demonstrate stress incontinence. The simplest study to determine the etiology of the incontinence is removing the urodynamic catheter with the bladder full and asking the patient to Valsalva in order to evaluate sphincteric function.

41. A 55-year-old woman has two episodes of gross hematuria. Multiple urine cultures are sterile. On cystoscopic examination, a nodular lesion is identified at the bladder outlet and is biopsied. Histologic evaluation reveals a granulomatous lesion with laminated concretions within the cytoplasm of macrophages. The best treatment for the condition is:

A. bethanechol chloride.
B. antibiotic therapy.
C. radiation therapy.
D. partial cystectomy.
E. tamsulosin.

ANSWER=A

The endoscopic and histologic appearance of the lesion is most consistent with malakoplakia. The described Michaelis-Guttman bodies are diagnostic for malakoplakia. This granulomatous process is thought to result from macrophage dysfunction due possibly to abnormally low intracellular concentrations of cyclic guanine monophosphate. Bethanechol chloride increases intracellular levels of cyclic guanine monophosphate and has proved beneficial in the treatment of malakoplakia. Many patients with malakoplakia have infected urine or histories of UTI. In this case, however, the malakoplakia did not appear to result from UTI, and antimicrobial therapy is not appropriate. The other treatments have no role in the management of malakoplakia.

42. A 38-year-old woman undergoes amniocentesis at 24 weeks gestation. The fetal karyotype is 45 X/46 XY. The gonads will most likely be:

A. bilateral streak gonads.
B. streak gonad and testis.
C. streak gonad and ovary.
D. streak gonad and dysgenetic testis.
E. bilateral testes.

ANSWER=E

With the widespread use of amniocentesis it has become apparent that over 90% of individuals born with 45,X/46,XY karyotypes have normal male genitalia. The infrequent presentation of these patients at a later date with either gonadal dysfunction or malignancy speaks for a normal hypothalamic-pituitary axis, and a low risk of malignancy.

43. A 55-year-old multiparous woman has urge incontinence. Urinalysis is normal and physical examination demonstrates a Grade 3 cystocele. Urodynamics reveal a postvoid residual of 100 ml, involuntary bladder contractions with incontinence, and a detrusor pressure at maximum flow (8 ml/sec) of 50 cm H2O. When the cystocele is reduced, no stress urinary incontinence can be elicited. The next step is:

A. oxybutynin.
B. doxazosin.
C. pubovaginal sling.
D. anterior colporrhaphy.
E. pubovaginal sling and anterior colporrhaphy.

ANSWER=D

This patient suffers from bladder outlet obstruction secondary to a large cystocele as indicated by a high voiding pressure and low flow rate. The obstruction secondarily causes detrusor instability and subsequent urgency incontinence. Despite reducing the cystocele, no stress incontinence can be elicited indicating good support of the urethrovesical junction. The best treatment is to repair the cystocele with a technique such as anterior colporrhaphy. The absence of stress urinary incontinence precludes the need for a pubovaginal sling and if performed alone is likely to exacerbate the obstruction. Treatment with oxybutynin in a patient with obstruction is likely to increase the postvoid residual. Although doxazosin can be used for female bladder outlet obstruction, when possible, the best treatment is to correct the underlying abnormality.

44. In women with uncomplicated cystitis, the greatest increase in E. coli resistance over the last decade has occurred with:

A. ampicillin.
B. nitrofurantoin.
C. cefazolin.
D. trimethoprim-sulfamethoxazole.
E. ciprofloxacin.

ANSWER=D

A number of studies have demonstrated an increase in E. coli uropathogen resistance to trimethoprim-sulfamethoxazole both in community and hospital populations in the past five to seven years. While ampicillin has the highest level of resistance, the greatest increase in resistance has occurred with trimethoprim/sulfamethoxazole (increasing from 9% to 18% resistance from 1993-1998).

45. A 52-year-old man has lethargy and weakness. His serum laboratory values are: sodium 115mEq/l, potassium 4.5mEq/l, chloride 80mEq/l, C0 2 23mEq/l, BUN 8 mg/dl, creatinine 0.8 mg/dl, uric acid 2.9 mg/dl. The most likely diagnosis is:

A. Addison's disease.
B. congestive heart failure.
C. cirrhosis with ascites.
D. inappropriate antidiuretic hormone secretion.
E. chronic diarrhea.

ANSWER=D

All of the listed conditions can cause hyponatremia but the syndrome of inappropriate antidiuretic hormone secretion (SIADH) is the only one associated with hypouricemia and a normal serum BUN and creatinine. SIADH is due to sustained endogenous over-production of ADH. Patients with SIADH reach a steady state in which body water is expanded by water retention but in which natriuresis prevents edema. Relative volume expansion results in an increased glomerular filtration rate, tubular sodium wasting and reduced net tubular absorption of creatinine and uric acid. Volume contracted states such as Addison's disease and chronic diarrhea are associated with hyperuricemia and pre-renal azotemia. In congestive heart failure and cirrhosis, serum uric acid is in the high normal range and the BUN and creatinine are often elevated.

46. A 47-year-old African-American woman has left flank pain and hematuria. Urine culture and cytology are negative. An IVP reveals a single area of calyceal cavitation on the left, and during cystoscopy blood is seen from that orifice. Hemoglobin electrophoresis is consistent with sickle cell trait. The next step is:

A. hypertransfusion.
B. epsilon aminocaproic acid.
C. rest, hydration, and alkalinization.
D. urethroscopy and fulguration.
E. angiography and selective embolization.

ANSWER=C

Sickle cell hemoglobinopathy accounts for one-third of cases of gross hematuria in African Americans. While hematuria occurs more regularly in patients with sickle cell disease, the problem occurs more frequently in patients with sickle cell trait because of the much higher frequency of this disorder. Although the mechanism of hematuria is not clear, presumably it results from sickling and sludging of blood in the medulla and papillae, leading to localized ischemia and papillary necrosis. Treatment of the hematuria begins with rest and hydration. Techniques reported of value include intravenous hydration, sodium bicarbonate, mannitol, and loop diuretics. Epsilon aminocaproic acid may also be of benefit though this agent should be reserved for intractable bleeding because of the risk of intrapelvic or ureteric clotting. Life-threatening hematuria can occur and should be managed with arteriography with selective

arterial embolization. In rare cases, refractory patients may require endoscopic localization followed by partial or total nephrectomy.

47. A 42-year-old man is being treated with six months of INH for BCG sepsis. To prevent neuropathy, he should be given:
A. ascorbic acid.
B. pyridoxine.
C. nicotinic acid.
D. Vitamin B12.
E. folic acid.
ANSWER=B
Because INH treatment is associated with neuropathy from pyridoxine deficiency, all patients should be supplemented with 25-50 mg of pyridoxine (Vitamin B6) daily.

48. A 57-year-old woman is evaluated for polyuria with daily urine output of 4-8 liters. The history and physical examination are unremarkable, and urinalysis is normal. Serum glucose is 100 mg/dl, and serum creatinine is 0.9 mg/dl. Urine osmolality is 100mOsm/l, and plasma osmolality is 270mOsm/l. After 12 hours of dehydration, the urine osmolality is 700mOsm/l. After vasopressin (ADH) is administered, urine osmolality increases to 1000mOsm/l. The most likely diagnosis is:
A. inappropriate ADH secretion.
B. partial ADH deficiency.
C. Bartter syndrome.
D. psychogenic polydipsia.
E. nephrogenic diabetes insipidus.
ANSWER=D
Dehydration and vasopressin result in appropriate physiologic responses. Therefore, the kidney is normal and the dilute urine is a physiologic response to abnormal intake. Some patients with psychogenic polydipsia have an abnormal response to dehydration and ADH because they may sneak fluids or have no osmotic gradient in the renal medulla. Thus, the diagnosis can be difficult.

49. Stage III prolapse in the Pelvic Organ Prolapse Quantitative (POPQ) system is when:
A. the most distal portion of the prolapse is 1 cm or less proximal or distal to the hymenal plane.
B. the most distal portion of the prolapse is 1 cm or less proximal or distal to the introitus.
C. the most distal portion of the prolapse protrudes more than 1 cm below the hymen but the entire vagina is not prolapsed.
D. the most distal portion of the prolapse protrudes more than 1 cm below the introitus but the entire vagina is not prolapsed.
E. there is complete vaginal eversion.
ANSWER=C
The Pelvic Organ Prolapse Quantitative (POPQ) system assigns negative numbers to structures that have not prolapsed beyond the hymen and positive numbers to structures that protrude, with the plane of the hymen defined as zero. The hymen was selected as the reference point rather than the introitus because it is more precisely identified. Stage III corresponds to prolapse beyond the hymen without complete vaginal eversion.

50. The fluoroquinolone most likely to alter blood glucose levels in an elderly diabetic is:
A. ciprofloxacin.
B. levofloxacin.
C. norfloxacin.
D. gatifloxacin.
E. ofloxacin.
ANSWER=D
Gatifloxacin and levofloxacin both exhibit a broad antibacterial spectrum of activity against gram-positive and gram-negative organisms as well as atypical organisms such as chlamydia and mycoplasma. However, gatifloxacin can prolong the QT interval and should not be used in patients on anti-arrhythmic drugs. Furthermore, gatifloxacin can cause life-threatening episodes of either hypoglycemia or hyperglycemia, especially in elderly diabetics.

51. The site of origin associated with the worst prognosis in rhabdomyosarcoma is:
A. uterus.
B. prostate.
C. vagina.
D. spermatic cord.
E. bladder.
ANSWER=B
Combination chemotherapy with or without extirpative surgery has improved the prognosis for patients with rhabdomyosarcoma. The prostate has the worst prognosis as pertains to organ of origin, and radical surgery may be required if there is lack of response to non-operative treatment.

52. A 45-year-old woman has urge incontinence one year following a sling procedure. Residual urine is 180 ml. Voiding pressure is 64 cm H2O. No stress incontinence is demonstrable on a videourodynamic study. Treatment should be:
A. alpha-blockers.
B. anticholinergics.
C. clean intermittent catheterization.
D. imipramine and timed voiding.
E. urethrolysis.
ANSWER=E
The patient has 180 ml residual urine, a very high voiding pressure, and detrusor instability. All of these are evidence of outflow obstruction. Anticholinergic agents, tricyclic antidepressants, and clean intermittent catheterization will not relieve obstruction which should be treated by urethrolysis. Following this procedure, maintenance of continence is the rule.

53. A 71-year-old man has urinary frequency and dysuria. WBC is 14,000 and his temperature is 39.2° C. Bladder ultrasound shows no residual urine. Dipstick urinalysis is nitrite and leukocyte-esterase positive. Appropriate initial antibiotic treatment is:
A. fosfomycin (Monurol).
B. trimethoprim-sulfamethoxazole.
C. ampicillin.
D. nitrofurantoin.
E. levofloxacin.
ANSWER=E
Fluoroquinolones are the first-line drugs for the treatment of UTIs in the elderly, especially men. Their broad spectrum of coverage and penetration into the prostate make them the preferred drugs. TMP-SMX can be considered first-line treatment in women, especially if the urinary pathogen is known to be TMP-SMX sensitive. Duration of therapy needs to be longer in the elderly, usually 10 days for women and 14-28 days for men.

54. Pathologic, as opposed to physiologic, post-obstructive diuresis results from:
A. impaired concentrating ability.
B. increased urea and sodium excretion.
C. increased free water clearance.
D. decreased prostaglandin excretion.
E. decreased angiotensin II secretion.
ANSWER=A
Physiologic post-obstructive diuresis is caused by retained urea, sodium and water. Pathologic post-obstructive diuresis is caused by impairment of concentrating ability or sodium reabsorption.

55. A 48-year-old woman with stress urinary incontinence after a hysterectomy undergoes a Burch urethral suspension. Preoperatively, the physical examination was normal except for urethral hypermobility. Postoperatively, she is continent but has a vaginal mass and pelvic pressure. The most likely diagnosis is:
A. cystocele.
B. enterocele.
C. rectocele.
D. vaginal vault prolapse.
E. urethral diverticulum.
ANSWER=B
A cystocele or rectocele would have been readily apparent on preoperative pelvic examination. Enterocele is harder to evaluate on examination and can develop de novo in up to 15% of patients undergoing retropubic bladder neck suspension where the bladder neck is pulled anteriorly. Retropubic suspension procedures generally do not affect the apex of the vault. The patient does not have symptoms of a urethral diverticulum, and the Burch suspension does not predispose to its development.

56. A 68-year-old diabetic woman is hospitalized for renal insufficiency. Three days after a catheter is placed, the patient has fever and right flank pain. Urinalysis demonstrates pyuria and fungal elements. CT scan shows no obstruction or perinephric fluid collections. The next step is:
A. observation.
B. amphotericin B bladder irrigation.
C. I.V. fluconazole for ten days.
D. I.V. amphotericin B for four days.
E. I.V. flucytosine for five days.
ANSWER=C
Ascending candidal pyelonephritis is most often caused by Candida albicans and usually occurs in hospitalized diabetic patients with renal insufficiency with or without obstructive uropathy. It may be complicated by the presence of a ureteral stent or Foley catheter. Because this is generally an upper tract parenchymal infection, amphotericin B bladder irrigation has no role in treatment. Systemic antifungal therapy with adequate upper tract drainage is essential. Systemic antifungal therapy should be continued for a minimum of 7 to 14 days with amphotericin B or fluconazole, the drugs of choice. Amphotericin B doses are not reduced in the presence of renal failure in order to adequately treat the candidal infection. Renal toxicity may be observed. Because fluconazole is less nephrotoxic and has a more favorable toxic therapeutic pattern, it is the drug of choice in upper tract ascending candidal pyelonephritis.

57. A 55-year-old man with a history of gout passes multiple calcium oxalate calculi. Urine pH consistently measures 5.3 to 5.5. An IVP is normal except for the presence of two small radiopaque, non-obstructing renal calculi. The next step is:
A. sodium cellulose phosphate.
B. hydrochlorothiazide.
C. allopurinol.
D. potassium citrate.
E. trichlormethiazide.
ANSWER=D
Gouty diathesis is characterized by a low urine pH, increased tubular re-absorption of urate, hyperuricemia and hypertriglyceridemia. Clinical manifestations include arthritis and renal calculi. Gout may be associated with both uric acid as well as calcium stones. Those patients who form calcium stones are less likely to have gouty arthritis and hyperuricemia. The invariant feature of those with gouty diathesis who form either uric acid or calcium stones is a urine pH consistently less than 5.5. The treatment is the same whether the stones are composed of uric acid or calcium: pH manipulation in the form of potassium citrate. Potassium citrate increases the urine pH and reduces the concentration of undissociated urate, reducing the possibility of uric acid crystallization. In addition, the urinary citrate will increase and also provide increased inhibitor activity against calcium stone formation.

58. A 76-year-old man with chronic atrial fibrillation undergoes abdominal arteriography for evaluation of renovascular hypertension and peripheral vascular disease. One day later he has severe hypertension, an increase in serum creatinine from 1.5 to 3.8 mg/dl, and punctate infarcts in his fingers and toes. The most likely cause is:
A. emboli from atrial thrombus.
B. cholesterol embolization.
C. renal artery dissection.
D. disseminated intravascular coagulation.
E. aortic dissection.
ANSWER=B
Cholesterol embolization of the kidneys usually affects elderly men with atherosclerotic vascular disease, and can occur spontaneously or, more commonly, following angiographic manipulation of a diseased aorta. Renal insufficiency and hypertension result from the ensuing renal ischemia. More than 40% of patients have digital infarcts. Extrarenal manifestations may involve the CNS (stroke) and gastrointestinal tracts (bleeding, infarcts, perforation). The diagnosis may be confirmed by the observation of intravascular cholesterol emboli on renal, skin, or muscle biopsy. Treatment is generally supportive. Emboli from an atrial thrombus are unlikely after intraarterial catheterization. Renal artery dissection may cause renal insufficiency and hypertension, but would not be associated with digital infarcts, and would likely have presented with acute hemorrhage. DIC and false abdominal aneurysm are unlikely to present in this manner.

59. The antibiotic excreted predominantly in the gastrointestinal tract is:
A. doxycycline.
B. erythromycin.
C. minocycline.
D. ciprofloxacin.
E. levofloxacin.
ANSWER=A
Most antimicrobial drugs used in urologic practice are excreted by the kidneys either by glomerular filtration (quinolones, most tetracyclines, sulfonamides, aminoglycosides), tubular secretion (many beta-lactans) or both. Erythromycin, rifampin, clindamycin are excreted mainly by the hepato-biliary system and doxycycline in the alimentary tract. In patients with renal insuffiency, the tetracyclines except doxycycline, sulfonamides and nitrofurantoin are contraindicated whereas dose modifications are required for TMP-SMX, the quinolones, and aminoglycosides.

60. A patient who has been tolerating total parenteral nutrition for two weeks suddenly develops severe glucosuria. The most likely cause is:
A. early development of sepsis.
B. administration of excess glucose.
C. reduction of energy needs in a stressed patient.
D. development of insulin antibodies.
E. pancreatic failure.
ANSWER=A
The most common cause of hyperglycemia and glucosuria in patients receiving hyperalimentation is an excess rate of glucose infusion. In a patient who is tolerating a given rate of glucose infusion and abruptly develops glucosuria, sepsis may be present. Moreover, other clinical parameters of infection may not appear for several hours.

61. The finding most suggestive of renal artery stenosis on duplex ultrasonography is:
A. decreased diastolic flow.
B. turbulent systolic flow.
C. increased peak systolic velocity.
D. renal aortic ratio < 3.5.
E. resistive index < 0.8.
ANSWER=C
Duplex ultrasound of the renal arteries is a useful noninvasive anatomic study for the diagnosis of renal artery stenosis (RAS). Although an altered flow pattern distal to the stenosis, including decreased diastolic flow and a turbulent systolic jet, can be suggestive of RAS, the most important single indicator is a peak systolic velocity (PSV) > 180 cm/sec. The renal aortic ratio (RAR) is the ratio of renal PSV to the aortic PSV. A RAR > 3.5 indicates > 60% stenosis. The renal resistive index does not directly assess renal artery flow.

62. A 70-year-old hypogonadal man is taking therapeutic doses of dehydroepiandrosterone (DHEA) for androgen replacement. This treatment will result in:
A. decreased testosterone levels.
B. decreased estradiol levels.
C. decreased PSA levels.
D. increased dihydrotestosterone levels.
E. decreased pregnenolone levels.
ANSWER=D
DHEA has been used as an over-the-counter drug to increase adrenal production of androgens. In normogonadal men, little effect on hormonal parameters or PSA is seen. For men who are hypogonadal, an increase in testosterone and its metabolites (DHT, estradiol) is expected. Pregnenolone, the immediate precursor to testosterone production within the testis, is likely to decrease or remain unaffected by exogenous DHEA. PSA levels increase in hypogonadal men who receive exogenous androgens.

63. The major site of action of aldosterone in the kidney is the:
A. proximal tubule.
B. juxtaglomerular apparatus.
C. ascending portion of Henle's loop.
D. collecting duct.
E. distal tubule.
ANSWER=E
Aldosterone is a mineralocorticoid produced in the adrenal cortex. Its main site of action is in the distal tubule. Aldosterone acts on the distal renal tubule to promote the absorption of sodium and the excretion of potassium. Renin promotes the conversion of angiotensinogen to angiotensin I. Angiotensin I is converted to angiotensin II which stimulates aldosterone release. Elevated potassium also stimulates aldosterone release. Renin is produced in the juxtaglomerular apparatus.

64. A 55-year-old woman underwent a midurethral sling for stress incontinence five months ago. She now has dysuria, urgency and frequency despite antibiotic treatment for two documented UTIs. Urinalysis reveals 2-3 RBC/hpf. Pelvic ultrasonography reveals a postvoid residual of 50 ml. The next step is:
A. IVP.
B. uroflowmetry.
C. filling cystometry.
D. VCUG.
E. cystoscopy.
ANSWER=E
Cystoscopy is necessary to exclude the possibility of a foreign body in this setting.

65. GnRH agonist therapy for stage D1 prostate cancer will promote:
A. increased fat mass and decreased bone density.
B. decreased fat mass and decreased bone density.
C. decreased fat mass and increased bone density.
D. decreased body weight and decreased fat density.
E. increased body weight and increased bone density.
ANSWER=A
Androgen deprivation therapy will increase body weight from increased fat mass and increase bone resorption causing osteoporosis.

66. An eight-year-old boy was treated for lipomyelomeningocele at birth. He is on clean intermittent catheterization every four hours and oxybutynin 5 mg BID. He develops new incontinence. The next step is:
A. urodynamics.
B. MRI scan of spine.
C. increase catheterization frequency.
D. increase anticholinergics.
E. start imipramine.
ANSWER=A
This patient should undergo urodynamic evaluation to assess the etiology of the incontinence. This could be due to a variety of different factors. MRI of the spine would be indicated if the urodynamic study shows new abnormal findings. Other indications for spinal MRI include lower extremity weakness or other abnormal findings on neurologic exam. Implementing any additional treatment at this time without identifying the cause for the incontinence would be premature.

67. The earliest finding in diabetic voiding dysfunction is:
A. increased bladder capacity.
B. decreased bladder sensation.
C. impaired detrusor contractility.
D. high bladder compliance.
E. decreased uroflow.
ANSWER=B
Diabetic cystopathy is characterized by the insidious onset of impaired bladder sensation which progresses to infrequent voiding and increasing of bladder capacity. Overstretching of the bladder eventually leads to impaired detrusor contractility and decreased uroflow.

68. Pheochromocytomas that occur in association with the multiple endocrine adenoma (MEA) syndromes differ from sporadic pheochromocytomas in that:
A. bilateral occurrence is more common.
B. paroxysmal attacks occur more frequently.
C. extra-adrenal sites are more common.
D. hypertension is more severe.
E. secretion of norepinephrine alone is more common.
ANSWER=A
The clinical manifestations of pheochromocytoma in the familial syndromes are the same as those in sporadic cases except that in familial syndromes, the pheochromocytomas are almost always bilateral and more frequently malignant.

69. Percutaneous renal biopsy is contraindicated in a ten-year-old boy with:
A. severe hypertension.
B. nephrotic syndrome.
C. rapidly progressive glomerulonephritis.
D. a transplant kidney.
E. IgA nephropathy.
ANSWER=A

Nephrotic syndrome, rapidly progressive glomerulonephritis and renal transplant with diminished function are common indications for renal biopsy. In a child this age, access to the kidney can be carried out with heavy sedation. The presence of severe hypertension is associated with a significant risk for hemorrhage post-biopsy.

70. One month after L-5 laminectomy, a 30-year-old woman develops lower extremity weakness, a residual urine of 300 ml, and intermittent urinary stream. Videourodynamics demonstrates detrusor-sphincter dyssynergia. The most likely explanation is:
A. pseudodyssynergia.
B. recurrent lumbar disk.
C. cauda equina syndrome.
D. undiagnosed multiple sclerosis.
E. permanent nerve injury from disk.
ANSWER=D
The urodynamic finding of detrusor-sphincter dyssynergia indicates that a suprasacral spinal lesion is present. This cannot be explained by a L-5 lumbar disk. A herniated disk at this level should not cause an uncoordinated bladder outlet. The most likely supraspinal lesion in a woman this age would be multiple sclerosis.

71. A 25-year-old sexually active woman has asymptomatic bacteriuria. A clean catch midstream urine culture demonstrates > 10 5 E. coli CFU/ml. The next step is:
A. observation.
B. renal ultrasound.
C. catheterized urine culture.
D. antibiotic therapy.
E. cystoscopy.
ANSWER=D
Asymptomatic bacteriuria in young, sexually active women is a strong predictor of subsequent symptomatic urinary tract infection. Asymptomatic bacteriuria should be treated in this patient population because therapy is effective and recurrence is rare. However, in older women therapy is less effective and rapid recurrence is common.

72. Renal function in the newborn is similar to that in the adult with regard to:
A. free water clearance.
B. urinary concentration.
C. glomerular filtration rate.
D. bicarbonate reabsorption.
E. urinary acidification.
ANSWER=A
Studies on various aspects of renal function demonstrate an immaturity of all of the renal functions listed except free water clearance (urinary-diluting capacity). The newborn kidney is able to dilute the urine as well as an adult, lowering urinary osmolality to 50 mOsm/l.

73. A 61-year-old woman becomes incontinent immediately after transvaginal repair of a Grade III cystocele. This is most likely due to:
A. detrusor instability.
B. partial bladder denervation.
C. underlying urethral deficiency.
D. surgical damage to the urethral sphincter.
E. bladder neck and proximal urethral obstruction.
ANSWER=C
The most common cause of the onset of urinary incontinence after repair of a large cystocele is underlying urethral dysfunction which is unmasked by reduction of the cystocele. Cystocele repair should not cause incontinence due to urethral and bladder denervation or obstruction of the proximal urethra. Cystocele repair is typically associated with improvement in both bladder emptying and urge incontinence. Thus, either urethral hypermobility or intrinsic sphincter deficiency is likely to be the cause of incontinence in this setting.

74. Normal vaginal flora such as lactobacillus protect the estrogenized vaginal vestibule from Enterobacteriaceae colonization by:
A. maintenance of alkaline pH.
B. increasing secretory IgA production.
C. production of zinc containing antibacterial factor.
D. blockade of bacterial adherence.
E. increasing oogonial IgG production.
ANSWER=D
Normal lactobacillus colonization of the vaginal entroitus decreases colonization of Enterobacteriaceae by maintaining an acidic vaginal fluid. It has also been demonstrated that fragmentation of lactobacillus cell walls blocks the adherence sites for Enterobacteriaceae.

75. A seven-year-old girl has diurnal enuresis that is not associated with infection. She has marked constipation and encopresis. Her physical examination reveals a normal appearing spine, and a normal neurologic examination. Her bladder is not percussible, and urinalysis is normal. The next step is timed voiding and:
A. spinal MRI scan.
B. VCUG.
C. urodynamic evaluation.
D. oxybutynin.
E. laxatives/enemas.
ANSWER=E
In the absence of a urinary tract infection, a VCUG or urodynamic evaluation is overly invasive. A spinal MRI scan is not warranted in the absence of any neurologic abnormality or spinal defect. Although oxybutynin is acceptable empiric treatment, it will likely make the constipation worse. Aggressive treatment of the constipation has been shown to benefit not only the encopresis, but also the urinary incontinence.

76. A 35-year-old T-10 paraplegic man who has managed his bladder for five years using a condom catheter has mild bilateral hydroureteronephrosis. CMG demonstrates a progressive increase in bladder pressure with filling, until a pressure of 60 cm H2O is achieved at 200 ml. The most appropriate treatment is:
A. bladder augmentation.
B. clean intermittent catheterization and anticholinergics.
C. external sphincterotomy.
D. bethanechol.
E. alpha blocker.
ANSWER=B
Some men with complete upper motor neuron lesions from spinal cord injury can void spontaneously into a condom catheter by reflex detrusor contraction. However, some degree of detrusor sphincter dyssynergia is usually present. After several years of voiding against a closed sphincter, bladder compliance decreases and high filling pressures lead to upper tract deterioration. Anticholinergic therapy combined with clean intermittent catheterization (CIC) should be the initial therapy. Bladder augmentation is reserved for patients who have failed IC. External sphincterectomy should not be a first line therapy in patients with hand function adequate to perform IC, assuming bladder pressures can be controlled with anticholinergics. The literature demonstrates bethanechol does not improve bladder emptying. This drug is contraindicated in the presence of hyperreflexia and high voiding pressures.

77. A 49-year-old diabetic woman has acute left flank pain. BP is 96/50 and pulse 118. Serum creatinine is 1.3 mg/dl and hemoglobin 9.8 g/dl. CT scan demonstrates a 5 cm solid lower pole mass and large left perirenal hematoma. Precontrast images of the mass measure -54 HU which enhances following I.V. contrast. The right kidney is normal. The next step is:

A. observation with follow-up CT scan.
B. selective renal arterial embolization.
C. percutaneous radiofrequency ablation.
D. partial nephrectomy.
E. total nephrectomy.

ANSWER=B

Retroperitoneal hemorrhage with a renal angiomyolipoma is the most significant complication associated with this benign tumor and occurs in up to 10% of patients. Most patients require total nephrectomy if explored. In the setting of tuberous sclerosis, bilateral disease, renal insufficiency, or other comorbidities that may affect renal function, selective renal arterial embolization should be considered and will prove definitive in most cases.

78. Paternity potential in males with spina bifida correlates positively with:

A. serum testosterone level.
B. sacral neurologic level of lesion.
C. reflexogenic erections.
D. shunt-dependent hydrocephalus.
E. glans penis sensation.

ANSWER=B

Studies on sexual function in males with spina bifida have demonstrated that paternity is associated with an L5 or sacral neurologic level. This neurologic level was present in 80% of patients who fathered children. An ambulatory status and no ventriculoperitoneal shunt are other important factors associated with paternity. Serum testosterone levels are usually normal. Reflexogenic erections are present in the majority of spina bifida patients and are not predictive of paternity.

79. The failure of bethanechol for the treatment of incomplete voiding relates to:

A. patient compliance.
B. visual disturbances.
C. poor Gl absorption.
D. discoordinated contraction of bladder, bladder neck and urethra.
E. predominance of M-1 muscarinic receptors in the bladder.

ANSWER=D

Pharmacologic activation of muscarinic receptors to enhance voiding often cause simultaneous contraction of the bladder, bladder neck and urethra preventing coordinated and complete bladder emptying.

80. A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney; the left kidney is normal. The most likely diagnosis is:

A. adrenal cortical carcinoma.
B. juxtaglomerular cell tumor.
C. pheochromocytoma.
D. renal cell carcinoma.
E. aldosteronoma.

ANSWER=B

The findings in this patient are a classic history as well as laboratory and radiographic findings of a juxtaglomerular cell tumor. These rare, benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. Patients with aldosteronomas should have suppressed plasma renin levels. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by release of sympathetic amines and do not cause hypokalemia.

81. A two-month-old girl with a high myelomeningocele closed at birth is managed with diaper voiding. She recently had a febrile UTI. Videourodynamics shows bilateral Grade V reflux, a thick-walled bladder, and leakage around a 5 Fr urethral catheter at 40 ml volume and 50 cm H2O pressure. The next step is:

A. vesicostomy.
B. conduit diversion.
C. antibiotics and oxybutynin.
D. augmentation and bilateral reimplants.
E. bilateral reimplants and clean intermittent catheterization.

ANSWER=A

This patient has high-grade reflux and a small bladder capacity with poor compliance. This is combined with high urethral resistance. Antibiotics alone with/without reimplants would be inadequate therapy. With Grade V reflux and a bladder volume of only 40 ml (which would predominantly be made up of the volume of the upper tracts) and high urethral pressure, ureteral reimplantation without correction of the poor bladder compliance would be inadequate. Clean intermittent catheterization may be helpful for the short-term; however, dangerously low compliance would make catheterization alone not optimal therapy. Augmentation with reimplants and intermittent catheterization may ultimately be the therapy of choice, but is probably not the best therapy for a two-month-old. Vesicostomy would provide temporary effective therapy.

82. An 85-year-old man has bothersome lower urinary tract symptoms. He underwent TURP 12 years ago. Urinalysis and urine cytology are negative. The most important test before considering repeat TURP is:

A. serum creatinine.
B. residual urine.
C. urine flow rate.
D. cystoscopy.
E. pressure-flow study.

ANSWER=E

Persistent or recurrent LUTS may occur after TURP. Since less than 20% of these men have any evidence of recurrent or persistent bladder outlet obstruction, assessment with pressure-flow studies are particularly useful to make determinations regarding the appropriateness of further surgical intervention. Many of these patients' symptoms are due to poor bladder contractility or detrusor overactivity. The urine flow test alone may be used for screening purposes, although it may be misinterpreted in the presence of high-flow, high-pressure voiding. Cystoscopy will rule out a stricture or bladder neck contracture but the presence of visually obstructing prostatic tissue does not correlate with bladder outlet obstruction.

83. Patients with von-Hippel Lindau disease most frequently have:

A. renal angiomyolipoma.
B. cafe au lait spots.
C. glioblastomas.
D. thyroid carcinoma.
E. retinal angiomas.

ANSWER=E

Patients with von-Hippel Lindau disease may have hemangioblastomas of the cerebellum, renal cell carcinomas, and cystadenomas of the epididymis. The diagnosis, however, can often be made most easily with inspection of the retina with identification of angiomas.

84. A 13-year-old boy falls from a tree and develops gross hematuria. CT scan shows a left renal laceration extending into the collecting system with significant urinary extravasation. Contrast is seen in the distal ureter. Three weeks following the injury, he develops a low grade fever, an ileus and a tender distended abdomen. CT scan shows a large left urinoma. The next step is:

A. placement of urethral catheter.
B. percutaneous nephrostomy drainage.
C. open surgical drainage and Tenorrhaphy.
D. percutaneous drainage of the urinoma.
E. placement of a ureteral stent.

ANSWER=D

Although major renal trauma can be managed conservatively, there is no consensus on the treatment of patients with significant renal injury involving a laceration extending into the collecting system with significant urinary extravasation. For patients in whom a urinoma develops, percutaneous catheter drainage should be considered initially. If the leak persists, an indwelling ureteral stent or percutaneous nephrostomy can be placed. These procedures usually obviate the need for open surgery.

85. The risks of acute urinary retention and the need for BPH related surgery are significantly reduced by:

A. saw palmetto.
B. doxazosin.
C. Serenoa repens.
D. doxazosin and Serenoa repens.
E. finasteride and doxazosin.

ANSWER=E

The 5-alpha-reducatase inhibitor finasteride, either alone or in combination, significantly reduced the risk of acute urinary retention and risk for BPH-related surgery. The use of the alpha-blocker doxazosin as monotherapy did prolong time to progression for acute urinary retention, but did not reduce overall risk for acute urinary retention.

86. The most frequent complications associated with the use of mitomycin C for intravesical therapy are:

A. chemical cystitis and rash.
B. myelosuppression and rash.
C. flu-like symptoms and myelosuppression.
D. contracted bladder and chemical cystitis.
E. myelosuppression and chemical cystitis.

ANSWER=A

Rash occurs in 9% of patients receiving mitomycin C instillations, and may represent a contact dermatitis. Chemical cystitis has been reported in 6-41% of patients managed with this agent. The molecular weight of mitomycin C is so high that little is absorbed and myelosuppression is rare. A contracted bladder is also rare after mitomycin C treatment. Flu-like symptoms, which are commonly seen after BCG and interferon therapy, are uncommon after intravesical chemotherapy.

87. The most likely pattern of hormonal secretion in a 46-year-old woman with Cushing syndrome from an adrenal adenoma is:

	Corticotrophin Releasing Hormone	ACTH
A.	↓	↑
B.	↑	↑
C.	↑	↓
D.	↓	↓
E.	↔	↔

ANSWER=D

Primary adrenal disease results in high Cortisol secretion that is independent of ACTH production. Negative feedback at the pituitary level results in low or even undetectable ACTH levels. Negative feedback at the level of the hypothalamus also results in down regulation of corticotrophin releasing hormone.

88. A 28-year-old paraplegic man had a sphincterotomy seven years ago and wears a condom catheter. During an evaluation for renal insufficiency, renal ultrasonography reveals bilateral hydroureteronephrosis. The study most predictive of this complication is:

A. EMG.
B. CMG.
C. Valsalva leak point pressure.
D. detrusor leak point pressure.
E. urethral pressure profilometry.

ANSWER=D

Detrusor leak point pressure is the most reliable urodynamic parameter to predict the risk of upper tract deterioration after sphincterotomy. A detrusor leak point pressure of higher than 40 cm H2O indicates that the sphincterotomy has failed.

89. A 65-year-old man has a large renal mass. An abdominal CT scan and a bone scan show no metastases. Serum alkaline phosphatase and liver function studies are normal, and the serum calcium is 11.2 mg/dl. The next step is:

A. serum parathyroid related protein.
B. ultrasound of neck.
C. MRI scan of abdomen.
D. MRI skeletal survey.
E. chest CT scan.

ANSWER=E

Renal cell carcinomas are associated with a variety of paraneoplastic syndromes including hypercalcemia which is thought to be due to tumor production of a parathyroid related protein. This can be due to the production of this substance by the primary tumor, but is most frequently seen in patients with metastatic disease. In the absence of metastatic disease, however, resection of the primary should be undertaken. The measurement of serum parathyroid related protein would not change management in this case. The most likely site of metastatic disease described here is in the chest so a chest x-ray or CT scan should be obtained.

90. A four-year-old boy fell from a second story window. On examination, his vital signs are stable, but he has right flank and upper quadrant abdominal tenderness and fullness. He does not have peritoneal signs. Urinalysis is negative. The next step is:

A. observation.
B. abdominal paracentesis.
C. abdominal and renal ultrasound.
D. IVP.
E. abdominal CT scan.

ANSWER=E

This boy has suffered a rapid deceleration injury. A pedicle injury or complete avulsion of the UPJ should be suspected. These can both occur without hematuria. Hence, observation would be inappropriate. An abdominal tap for blood would not diagnose a renal injury. An ultrasound would likely not be diagnostic. CT scan is more likely to be diagnostic than an IVP and would help identify other abdominal injuries.

91. Prostaglandin E1 relaxes corporal cavernosal smooth muscle by:

A. releasing nitric oxide.
B. blocking calcium efflux.
C. raising cyclic GMP.
D. raising cyclic AMP.
E. opening potassium channels.

ANSWER=D

Release of nitric oxide, blocking calcium efflux, raising cGMP or opening potassium channels all relax penile smooth muscle. Prostaglandin E1 specifically increases cAMP. This is important since other agents may work at separate sites with the same or opposing results.

92. A healthy 50-year-old man with gross hematuria has a peripherally located 4 cm solid mass in a solitary kidney. The serum creatinine is 1.2 mg/dl. CT scan demonstrates a 1 cm renal vein tumor thrombus. There is no evidence of metastasis. The next step is:
A. radiofrequency ablation.
B. laparoscopic cryoablation.
C. partial nephrectomy.
D. radical nephrectomy.
E. systemic immunotherapy.
ANSWER=D
Under usual circumstances a peripherally located tumor in a solitary kidney is best managed by partial nephrectomy, both for potential cure and to prevent the need for dialysis. However, the presence of a venous thrombus makes complete tumor excision less likely and is associated with a high likelihood of tumor recurrence and poor prognosis after partial nephrectomy. Given the patient's good health, long life expectancy, and episode of gross hematuria, observation is likely to result in further tumor progression, more bleeding or other local symptoms which may require intervention, and potentially metastatic disease. Laparoscopic cryoablation is an investigative technique best used for smaller tumors and will not control the tumor thrombus. Systemic immunotherapy rarely results in a response in the primary tumor and is unlikely to be curative. Thus, the best choice is radical nephrectomy which will result in the need for dialysis. A prolonged disease-free interval would make the patient eligible for subsequent renal transplantation. Selective angioinfarction of the tumor is another alternative which could be used for palliation of the bleeding, but will not be curative.

93. Persistent urinary incontinence following resection of posterior urethral valves is most frequently due to:
A. detrusor instability.
B. vesicoureteral reflux.
C. non-compliant bladder.
D. incompetent bladder neck.
E. damaged external urethral sphincter.
ANSWER=A
Urinary incontinence following surgery for posterior urethral valves is common. Although in some instances this is secondary to the primary surgery in the urethra or bladder neck, the most common finding is detrusor instability.

94. A 58-year-old diabetic man has a tender, fixed scrotal pump two weeks after insertion of an inflatable penile prosthesis. There is no purulent drainage from the wound. Serum glucose is 450 mg/dl, serum bicarbonate is 10 mM/l, and WBC is 15,000. His urine is positive for ketones. The next step is intravenous antibiotics and:
A. continued observation.
B. scrotal ultrasonography.
C. pelvic MRI scan.
D. salvage replacement of the prosthesis.
E. removal of the prosthesis
ANSWER=E
This patient has all the signs for an infected implant that is complicated by ketoacidosis. This precludes a salvage procedure or observation with antibiotics.

95. A 23-year-old man has a persistent 5 cm inter-aortocaval mass after three cycles of BEP chemotherapy for a left mixed germ cell tumor. Serum tumor markers are normal. During retroperitoneal lymphadenectomy, the mass is densely adherent to the aorta and vena cava. An incisional biopsy of the mass reveals fibrosis. The next step is:
A. complete retroperitoneal lymphadenectomy.
B. terminate lymphadenectomy and follow tumor markers.
C. sample para-aortic and paracaval nodes.
D. completely resect residual mass.
E. perform left side template dissection.
ANSWER=A
Following chemotherapy for retroperitoneal metastases from non-seminomatous germ cell tumors, teratoma will be found in approximately 40% of patients. When this is found, complete resection is mandatory for a number of reasons. Although the teratoma may be benign, continued growth of the tumor can lead to significant morbidity and the tumor can become unresectable. Additionally, complete pathologic evaluation will detect foci of residual cancer in up to 20% of patients.

96. Ultrasound of a newborn boy with an abdominal mass shows an enlarged kidney containing large cystic spaces that do not appear to communicate with one another. The best test to confirm the diagnosis is:
A. CT scan.
B. IVP.
C. retrograde pyelogram.
D. DMSA renal scan.
E. antegrade pyelogram.
ANSWER=D
The diagnosis of multicystic kidney and its differentiation from hydronephrosis is usually suggested by ultrasonography. A DMSA or MAG-3 renal scan is necessary to confirm absence of renal function in the multicystic dysplastic kidney. In most cases, hydronephrosis will display prominent blood flow and renal function whereas the multicystic kidney will not. A CT scan and IVP cannot make this differentiation. A retrograde pyelogram is inappropriately invasive. While an antegrade pyelogram can provide discriminating information, it is likewise invasive and not necessary in most cases.

97. A 38-year-old paraplegic man has a sustained erection of ten hours duration following the intracorporeal injection of 10 ug of prostaglandin E1. The next step is intracorporeal injection of:
A. epinephrine.
B. phentolamine.
C. phenylephrine.
D. terbutaline.
E. phenoxybenzamine.
ANSWER=C
Blood flow to the penis is increased by drugs that elicit corporal smooth muscle relaxation. The treatment of priapism resulting from intracavernous drug therapy, if simple irrigation is unsuccessful, is with an alpha-agonist. While epinephrine would be effective, its beta-agonist activity may promote cardiovascular side effects. Therefore, phenylephrine is the correct answer.

98. A 26-year-old man undergoes a left radical orchiectomy for seminoma. A CT scan reveals two 3 cm inter-aortocaval nodes at L3, and one 3 cm para aortic node at L4. The AFP is 25lU/ml (0-10lU/ml), and beta-hCG is 8mlU/ml (0-10mlU/ml). The next step is:
A. infradiaphragmatic radiation therapy.
B. cisplatin-based chemotherapy.
C. infradiaphragmatic plus supradiaphragmatic radiation therapy.
D. retroperitoneal lymphadenectomy.
E. retroperitoneal lymphadenectomy plus cisplatin-based chemotherapy.

ANSWER=B
Although the histological diagnosis is seminoma, the elevated alpha-fetoprotein is indicative of a non-seminomatous testis tumor, and the patient should be managed as such. The orchiectomy specimen should be re-evaluated in detail to look for an additional germ cell elements. Given the findings on the CT scan, this patient has a clinical Stage IIC tumor. Based on the data available in the literature, it appears these patients are best served with initial chemotherapy rather than retroperitoneal lymph node dissection following the inguinal orchiectomy. The most widely utilized regimen today is three cycles of bleomycin, etoposide (VP-16), and cisplatin. If residual nodal tissue is evident after the multidrug chemotherapy, surgical excision is recommended. With the evolution of effective multi-drug regimens, radiation therapy is no longer utilized in the management of Stage IIC non-seminomatous testis tumors.

99. In patients with pelvic nodal metastasis at cystectomy for transitional cell carcinoma of the bladder, the prognosis depends on primary bladder tumor stage, the number of involved nodes and:
A. tumor grade.
B. p53 status of primary tumor.
C. DNA ploidy status of primary tumor.
D. prostatic urethral involvement.
E. number of lymph nodes removed.
ANSWER=E
A number of recent studies have demonstrated that the quality and extent of lymphadenectomy during radical cystectomy have significant impact on subsequent mortality from bladder cancer.

100. A 27-year-old man states that since a radical orchiectomy for Stage A seminoma six months previously, the frequency and quality of his erections have been poor. He received radiotherapy to periaortic nodes. The last treatment was two months after the orchiectomy. His chest x-ray, serum markers, glucose, and testosterone are normal. The next step is:
A. intracavernosal injection therapy.
B. sexual dysfunction counseling.
C. intraurethral alprostadil.
D. nocturnal penile tumescence studies.
E. testosterone patch.
ANSWER=B
The patient should be told that during the early months after surgery, depression and loss of vigor are common along with an impaired sense of body image and mood disturbances. Patients cured of testis cancer rarely have persistent emotional disturbances. Sexual drive does not appear to be permanently disrupted by curative therapy. Crutches such as testosterone and other drugs, such as yohimbine, should be avoided. With time and reassurance, he should recover his normal libido and potency. Reassessment of such patients one year after treatment has shown that depression and mood disturbances have usually cleared.

101. Tumor recurrence in the wound following partial cystectomy for transitional cell carcinoma of the bladder is most effectively minimized by:
A. intravesical BCG.
B. wound irrigation and packing.
C. electrocautery.
D. postoperative radiation therapy.
E. preoperative radiation therapy.
ANSWER=E
The incidence of tumor recurrence in the wound following partial cystectomy can be reduced by preoperative radiation therapy. Without the use of preoperative radiation therapy wound implantation rates of 10-20% have been reported. This implantation rate can be reduced by the administration of 1000-1200 rads immediately preoperatively. Unfortunately, tumor recurrence rates within the bladder of as high as 70% have been reported with high grade tumors, making partial cystectomy useful in only a very small portion of patients.

102. In a duplicated urinary system, obstructive hydronephrosis in the lower pole system is usually due to:
A. orthotopic ureterocele.
B. ectopic ureter.
C. ureteropelvic junction obstruction.
D. ectopic ureterocele.
E. ureterovesical junction obstruction.
ANSWER=C
Obstruction of the upper pole moiety in complete ureteral duplication is usually due to ectopic ureter or ureterocele. Obstruction in the lower pole moiety in both complete and incomplete ureteral duplication is usually due to UPJ obstruction.

103. A 25-year-old man has inadequate erections since sustaining a pelvic fracture in a motor vehicle accident two years ago. After a successful urethral stricture repair, he denies any difficulty with orgasm and ejaculation. Intracavernosal injection of 15 ug of prostaglandin Ei produces a soft erection. The next step in evaluation should be:
A. infusion cavernosography.
B. pelvic/pudendal arteriography.
C. infusion cavernosometry.
D. intracavernosal injection of 30 ug of prostaglandin E-|.
E. color Doppler study of penile arteries.
ANSWER=E
This young patient most likely has either an arterial or a neurologic injury to explain his erectile difficulty. A neurologic lesion is less likely because of his failure to respond with an erection to a reasonable dose of prostaglandin E1. Patients with neurogenic injuries frequently respond to very low doses of intracavernosal agents. The major clinical question which needs to be answered is whether or not this patient has an arterial injury. Infusion cavernosography and infusion cavernosometry are studies which demonstrate the extent and site of corporovenous leakage. Fifteen ug of prostaglandin E1 is a reasonable dose of drug to administer and increasing the dose to 30 ug would likely not produce more information. The study of choice to determine the presence of arterial disease in this clinical situation is a color Doppler study of the penile arteries before and after the intracavernosal injection of vasoactive drugs. Only after arterial disease has been diagnosed and only when operative revascularization is under consideration should pelvic/pudendal arteriography be performed.

104. A 58-year-old diabetic man has gross hematuria, a small filling defect in the left renal pelvis, and a normal right collecting system and ureter on retrograde pyelography. Prior history includes three transurethral resections of Grade I, Stage Ta(O) transitional cell bladder tumors during the past two years. Serum creatinine is 2.4 mg/dl. Renal sonography is normal. Ureteral urine cytologies are positive on the left side only. The next step is:
A. percutaneous mitomycin C.
B. retrograde BCG instillation.
C. ureteroscopy.
D. percutaneous nephroscopy.
E. nephroureterectomy.
ANSWER=C
The history is suggestive of upper tract transitional cell carcinoma. The patient has renal impairment and diabetes. Presently, endoscopy for upper tract transitional cell carcinoma takes the form of ureteroscopy for biopsy and probably for excisional fulguration for ureteral lesions or small, less than 1 cm renal lesions and

percutaneous nephroscopy and excision for larger renal lesions. Overall, either endosurgical approach should generally be limited to individuals with a solitary kidney and a low-grade, apparently low-stage tumor confined to a single focus or to those few individuals with two kidneys who either are too ill or have significant renal insufficiency such that nephrectomy is contraindicated.

105. A newborn boy with anemia and jaundice has an abdominal ultrasound that shows a left suprarenal mass. A follow-up ultrasound at one month reveals that the mass is slightly smaller, but is now calcified. Serum alpha-fetoprotein and a urinary VMA are normal. The next step is:
A. needle aspiration.
B. abdominal CT scan.
C. abdominal MRI scan.
D. exploratory laparotomy.
E. observation.
ANSWER=E
The most likely diagnosis is adrenal hemorrhage. Although a neuroblastoma is a possibility, it is not likely in this age group. Observation with repeat sonography will confirm that the lesion is getting smaller.

106. A penoscrotal approach is used for implantation of a semirigid penile prosthesis. The left cylinder is placed uneventfully. However, difficulty is encountered during placement of the right cylinder. Subsequently, both cylinders appear to lie on the same side of the penis. The next step is:
A. remove both cylinders; abandon procedure.
B. leave a single cylinder on the left side.
C. place a small dilator on the left and redilate the right corpus.
D. repair septal perforation.
E. urethroscopy.
ANSWER=C
Perforation of the septum between the corpora cavernosa is not uncommon, particularly distally. Distal crossover can be easily corrected by redilation of the corpus while maintaining a lateral course, and leaving a small dilator in the contralateral corpus.

107. A 40-year-old paraplegic man has an ileocecal pouch cutaneous continent diversion. After a fall, he is unable to obtain urine on catheterization and is seen in a local emergency room. The next step is:
A. place indwelling catheter.
B. flexible cystoscopy of pouch.
C. percutaneous drainage of the pouch.
D. pouchogram.
E. surgical exploration.
ANSWER=D
Intraperitoneal rupture of catheterizable pouches is more common in the neurologic patient in whom sensation of pouch fullness may be less distinct. Often there is associated mild abdominal trauma, such as a fall, antecedent to the rupture. The patient needs radiographic pouch studies and pouch decompression. If the amount of urinary extravasation is small and the patient does not have a surgical abdomen, catheter drainage and antibiotic administration may suffice in treating intraperitoneal rupture of the pouch. For significant extravasation or a surgical abdomen, surgical exploration and pouch repair is required. The use of Coude-tip catheter, flexible cystoscope, and percutaneous drainage are used in acute pouch urinary retention.

108. The most compelling reason to use large bowel rather than small bowel in an undiversion procedure is a decrease in:
A. incidence of reflux.
B. intraluminal pressure.
C. incidence of malignancy.
D. mucous production.
E. incidence of bladder stones.
ANSWER=A
The clearest advantage is the ability to use the thicker muscle of the large bowel to tunnel an antirefluxing anastomosis. Problems with mucous are greater than with small bowel and the incidence of malignancy may be higher with large bowel. The intraluminal pressure is higher with large bowel.

109. A 53-year-old diabetic man sustains a minor proximal crural perforation during primary implantation of a three-piece inflatable penile prosthesis via a penoscrotal approach. The best management is:
A. abort the procedure.
B. secure exit tubing of the ipsilateral cylinder.
C. extend corporotomy for primary repair.
D. place malleable implant.
E. direct closure via perineal approach.
ANSWER=B
A common intraoperative complication with penile prosthesis surgery is crural perforation. If this occurs with insertion of an inflatable device with attached tubing, placing a tunica albuginea closure suture on either side of the exit tubing to keep the cylinder in place has worked sufficiently without requiring a more extensive repair.

110. In a patient with squamous cell carcinoma of the penis, positive inguinal lymph nodes are most likely to be present with:
A. palpable lymph nodes at initial presentation.
B. non-palpable lymph nodes and a Tis of the entire glans.
C. non-palpable lymph nodes and a 4 cm T1 lesion of the shaft.
D. non-palpable lymph nodes and a T2 lesion of the glans.
E. T1 tumors on proximal shaft and glans.
ANSWER=D
66-68% of patients with non-palpable inguinal lymph nodes and a T2 primary lesion will have positive nodes on inguinal node dissection. Fifty percent of palpable nodes at diagnosis harbor cancer with the remainder illustrating reactive hypertrophy due to inflammation associated with penile lesions. Less than 10% of superficial lesions are associated with lymph node metastasis.

111. A ten-day-old boy with a transverse colostomy performed for a high imperforate anus has a serum chloride of 115mEq/l, sodium of 145mEq/l, potassium of 4.5mEq/l, and CO2 of 17mEq/l. The most likely explanation for these findings is:
A. sepsis.
B. renal dysplasia.
C. severe hydronephrosis.
D. neurogenic bladder dysfunction.
E. electrolyte absorption from large bowel.
ANSWER=E
Genitourinary anomalies associated with imperforate anus are common. The most common is rectourethral fistula; present in 25% of all patients with imperforate anus and found much more commonly in the high or supra levator imperforate anus patient. Reflux is present in 19%, hydronephrosis without reflux in 12%, and dilated ureters without reflux in 7%. Bilateral renal agenesis and dysplastic kidney each comprise 2%. When a rectourethral fistula exists, urine can flow into the colon leading to electrolyte resorption and recurrent UTIs even after diverting colostomy.

112. The most definitive study to rule out traumatic bladder rupture is:
A. pelvic CT scan.
B. cystoscopy.
C. pelvic ultrasound.
D. CT cystogram.

E. IVP.
ANSWER=D
A CT cystogram and static cystogram are definitive imaging studies for the diagnosis of bladder rupture. Adequate distension of the bladder with contrast injection through the catheter is necessary to evaluate for bladder rupture. CT cystography provides additional anatomic detail over that provided by cystography alone. Small leaks are frequently missed on urography and standard CT scans because of temporary sealing by omentum or blood clots. Only full distension and post-drainage films will identify bladder rupture in such instances.

113. A 76-year-old woman has intermittent urethral bleeding and a 0.7 cm mass at the urethral meatus. Biopsy is positive for Stage A squamous cell carcinoma. No inguinal lymphadenopathy is present, and metastatic evaluation is negative. The next step is:
A. anterior pelvic exenteration.
B. combined interstitial and external beam radiation therapy.
C. partial urethrectomy and bilateral inguinal lymphadenectomy.
D. partial urethrectomy and adjuvant radiation therapy.
E. partial urethrectomy.
ANSWER=E
The recommended treatment of choice for squamous cell carcinoma confined to the distal one-third of the female urethra is partial urethrectomy. In some patients, a partial vulvectomy also may be necessary to ensure adequate surgical margins. As much as two-thirds of the distal urethra can be removed without compromise to continence. Inguinal lymphadenectomy is performed only in the setting of palpable nodes. Prophylactic lymphadenectomy is of no therapeutic benefit, but it can be the cause of significant morbidity.

114. A 12-year-old boy who has previously undergone an ileal augmentation catheterizes every four hours but develops recurrent bladder calculi. The most effective way to diminish recurrence is:
A. restrict dietary sodium.
B. potassium citrate.
C. irrigate daily.
D. increase frequency of catheterization.
E. catheterize in the supine position.
ANSWER=C
The development of bladder calculi is a frequent complication following bladder augmentation. A patient who has had an excessive amount of ileum resected is at risk for enteric hyperoxaluria, however, this should not occur with routine ileal augmentation. Sodium restriction is unnecessary as this is not usually due to a metabolic abnormality. Catheterization in a supine position may result in retained urine which may lead to stone formation. Potassium citrate supplementation has not proven to be effective in reducing the incidence of bladder calculi after augmentation. The most effective means of preventing stone formation is daily bladder irrigation.

115. A 65-year-old man who underwent placement of an intraurethral stent for treatment of a recurrent bulbar urethral stricture has a markedly decreased urinary stream three months postoperatively. Urethroscopy demonstrates obstructive tissue protruding through the stent. The next step is:
A. balloon dilation.
B. replace stent.
C. urethroplasty.
D. suprapubic cystostomy.
E. endoscopic resection of tissue.
ANSWER=E
Hyperplastic tissue can sometimes protrude through endoluminal stents postoperatively. Careful resection of this tissue is often effective, as this hyperplastic reaction usually subsides over time.

116. A 40-year-old woman undergoes a partial nephrectomy for an incidentally-found 4 cm renal mass. Pathology shows a metanephric adenoma with a positive surgical margin. The next step is:
A. observation.
B. long-term antibiotics.
C. radiofrequency ablation.
D. external beam radiation.
E. radical nephrectomy.
ANSWER=A
Metanephric adenoma is a benign lesion of the kidney of uncertain etiology. It has a uniformly benign course, even with large lesions. Historically these lesions have been treated with radical nephrectomy because of inability to distinguish them from renal cancer on radiologic exam.

117. A premature infant requiring long-term intravenous alimentation and antibiotic therapy develops a left flank mass and hematuria. Ultrasonography reveals an echogenic mass within a hydronephrotic kidney. Renal scan shows decreased blood flow and function in the left kidney. Blood and urine cultures are positive for Candida albicans. In addition to systemic antifungal therapy, the next step is:
A. nephrectomy.
B. cutaneous loop ureterostomy.
C. percutaneous nephrostomy and antifungal irrigation.
D. ureteral stent.
E. ureteral stent and ESWL.
ANSWER=C
Percutaneous nephrostomy with antegrade antifungal irrigation coupled with systemic antifungal treatment is the mainstay of successful therapy for obstructing candidiasis in the infant urinary tract. Aggressive early therapy and repetitive monitoring with ultrasonography has doubled the survival rate in the last few years from less than 50% to nearly 100%.

118. A 30-year-old man has a one-week history of priapism after a straddle injury. The corpora are aspirated, and a blood gas reveals a pH of 7.35, p0 2 of 93 mm Hg, and a PCO2 of 30 mm Hg. He is treated twice with intracorporeal phenylephrine irrigation. Each time there is initial detumescence and rapid return to the erect state. The next step is:
A. methylene blue irrigation.
B. glanular-cavernosal shunt.
C. epinephrine irrigation.
D. oral terbutaline.
E. transarterial embolization.
ANSWER=E
The patient's history and clinical findings are all consistent with a nonischemic traumatic priapism due to an injury of the cavernosal artery with fistula formation. Although methylene blue irrigation, shunt, epinephrine irrigation, and oral terbutaline are all effective forms of treatment for priapism, the best treatment for traumatic priapism is arteriography to identify the injured vessel and then embolization. Observation is an alternative option.

119. A 22-year-old man has a Stage II nonseminomatous germ cell tumor. Serum AFP is 3,000lU/ml and beta-hCG is 5,000mlU/ml. One week after starting the first of four planned cycles of bleomycin, etoposide, and cisplatin chemotherapy, the serum AFP has risen to 3,200lU/ml and beta-hCG to 6,000mlU/ml. Chest x-ray remains normal. The next step is:
A. continue chemotherapy.

B. salvage chemotherapy.
C. stem cell transplantation.
D. increase cisplatin dose.
E. retroperitoneal lymphadenectomy.
ANSWER=A
An unpredictable rise in marker levels may occur from two to ten days after initiation of chemotherapy and is not associated with adverse outcome, so the correct choice is to continue with the planned therapy. A rise in tumor markers soon after initiation of therapy is probably due to tumor lysis rather than progression. Thereafter, tumor marker levels should fall exponentially with a half life of one to two days for beta-hCG and five to seven days for AFP. Plateau and subsequent rise of either marker often heralds failure of therapy.

120. A two-year-old girl has a febrile UTI with fever spikes continuing despite three days of I.V. antibiotics. The next step is:
A. VCUG.
B. MAG-3 scan.
C. DMSA scan.
D. renal ultrasound.
E. abdominal CT scan.
ANSWER=D
Persistent fever in the setting of UTI suggests an anatomic abnormality contributing to the infection, or less likely a renal abscess. In children, renal ultrasonography should be the initial imaging study for evaluation in this clinical setting. VCUG may fail to demonstrate an obstructive condition, IVP may not demonstrate a renal abscess well, and if there is absence of function in an affected renal unit, would not precisely define the condition. DMSA would not show anatomic detail. A CT scan provides enhanced anatomic detail and maybe required following a non-diagnostic ultrasound if symptoms persist.

121. A 45-year-old man has left flank pain four hours after blunt flank trauma. Physical examination is normal. His BP is 110/60 mm/Hg, pulse is 80, and urinalysis demonstrates 5 RBC/hpf. The next step is:
A. IVP.
B. CT scan.
C. renal ultrasound.
D. isotope renography.
E. observation.
ANSWER=E
A review of 2,254 patients with suspected renal trauma seen from 1977 to 1992 was performed by McAninch and colleagues. Of the 1,588 blunt trauma patients with microscopic hematuria and no shock, three had significant injury but these cases were discovered during imaging or exploratory laparotomy for associated injury. Follow-up of 515 of 1,004 patients (51%) who did not undergo initial imaging revealed no significant complications. Adults with blunt renal trauma, microscopic hematuria and no shock (systolic pressure <90) or major associated intra-abdominal injuries can safely be spared radiographic imaging.

122. An 18-year-old man undergoes right radical orchiectomy. Pathology reveals mixed germ cell tumor with seminoma, yolk sac and choriocarcinoma. Serum markers show beta-hCG >50,000 IU/L, AFP 150 ng/dl, and LDH two times the upper limit of normal. CT of chest, abdomen and pelvis shows a large retroperitoneal mass. Prior to starting chemotherapy, further workup should be:
A. none.
B. bone scan.
C. brain MRI scan.
D. abdominal MRI scan.
E. PET scan.
ANSWER=C
The presence of choriocarcinoma and very high beta-hCG puts this patient at risk of hematogenous metastases, especially in the brain. A brain MRI scan should be performed prior to starting any chemotherapy. The role of PET scan in this setting is still investigational.

123. During embryologic development, the duct that passes through the umbilicus is the:
A. mullerian.
B. wolffian.
C. Gartner's.
D. Luschka's.
E. omphalomesenteric (vitelline).
ANSWER=E
The vitelline or omphalomesenteric duct is an attachment from the small intestine to the umbilicus. The other ducts mentioned are not found on the anterior abdominal wall. Purulent drainage from the umbilicus, although usually from a urachal remnant may be from the vitelline duct. If at the time of surgical exploration an omphalomesenteric duct is found, these patients may require partial small bowel resection.

124. A 40-year-old man suffers a gunshot to the abdomen with left ureteral transection at the L3 vertebral level, and a ureteroureterostomy is performed. Postoperatively, he is not able to flex his thigh or extend his leg. These deficits are due to dysfunction of the:
A. femoral nerve.
B. iliopsoas muscle.
C. genitofemoral nerve.
D. lateral femoral cutaneous nerve.
E. quadriceps femoris muscle.
ANSWER=A
The femoral nerve arises from the second, third, and fourth lumbar spinal segments. It appears at the lateral edge of the psoas muscle and descends into the thigh. It supplies a number of muscles including the quadriceps femoris complex, articularis genu, sartorius, pectineus and iliopsoas.

125. The main advantage of the Turnbull loop stoma versus an end stoma for an ileal conduit is:
A. lower incidence of parastomal hernia.
B. better appliance fit.
C. lower incidence of stomal prolapse.
D. less tension on the mesentery.
E. better cosmetic appearance.
ANSWER=D
Use of a loop stoma usually results in less tension on the mesentery of the ileum and allows easier creation of a stomal bud. This helps avoid stomal ischemia and results in a lower incidence of stomal stenosis. The loop stoma is especially useful in the obese patient where it may be otherwise difficult to obtain a good stomal bud which projects above skin level. Because of the larger fascial defect needed to construct a loop stoma they are more prone to parastomal hernia. The defunctionalized end of a loop stoma is also prone to prolapse. A well-constructed end or loop stoma should have similar cosmetic appearance and appliance fit.

126. The blood supply to an ileal conduit originates from the following artery:
A. superior mesenteric.
B. common iliac.
C. inferior mesenteric.
D. circumflex iliac.
E. celiac.
ANSWER=A

The superior mesenteric artery is the blood supply to the small bowel and proximal colon. The inferior mesenteric artery supplies blood to the mid and distal colon. The celiac axis provides blood to the liver, spleen, stomach, pancreas and duodenum. The iliac and circumflex iliac arteries do not provide blood supply to the intestine.

127. The upper ureter is more susceptible to serious injury during endourological procedures because it:
A. is less distensible.
B. has thin submucosa.
C. has thin muscularis.
D. has thin mucosa.
E. has variable blood supply.
ANSWER=C
The ureteral wall consists of three different layers. However, the composition of these layers is not constant for the entire length of the ureter. The mucosa, which is four or five cell layers thick, consists of transitional epithelium, and a lamina propria with loose or dense connective tissue, but not a distinct submucosa. The muscularis varies in its composition over the course of the ureter. In the proximal ureter, it consists of a thin, poorly defined inner circular and an outer longitudinal layer. Both the mid and distal ureter have a muscularis which is distinctly composed of an inner longitudinal, middle circular, and outer longitudinal fibers. This deficiency in the muscularis of the upper ureter and the geometric arrangement of large areas of collagenous connective tissue interspacing the muscle bundles is thought to make the upper ureter more susceptible to serious ureteral injury.

128. Six years after a radical cystectomy and continent cutaneous ileocecal diversion for a high grade, muscle invasive, transitional cell carcinoma of the bladder, a 71 -year-old man has generalized weakness. Hematocrit is 31% and creatinine is 1.6 mg/dl. The most likely cause of anemia is:
A. tumor recurrence.
B. Vitamin B12 deficiency.
C. folic acid deficiency.
D. anemia of chronic disease.
E. iron deficiency.
ANSWER=B
In patients with significant loss of ileum, Vitamin B12 malabsorption has been reported and results in megaloblastic anemia and neurological abnormalities. Thirty-five percent of patients followed over five years after a Kock pouch were found to be deficient in one series. Yearly Vitamin B12 levels should be assessed starting 1-2 years after such procedures. Replacement can be by monthly injection or weekly intranasal gel.

129. A 56-year-old man undergoes a difficult radical perineal prostatectomy that lasts six hours. Postoperatively he has weakness of the left foot with inability to dorsiflex. The nerve most likely injured is the:
A. femoral.
B. genitofemoral.
C. sciatic.
D. obturator.
E. peroneal.
ANSWER=E
The patient has an injury to the common peroneal nerve. Of the lower extremity nerves, the common peroneal nerve is at greatest risk for injury. This occurs most commonly after operations in the lithotomy position. After leaving the popliteal fossa, the nerve crosses anterolateral^ around the head of the fibula. In this superficial location over the bony prominence of the knee, it is exposed to compression injury. Stretching the nerve by knee and hip flexion also increases the risk for pressure injuries. This nerve supplies the tibialis anterior which provides dorsiflexion of the foot.

130. A 40-year-old obese Caucasian man is evaluated for irritative voiding symptoms. IVP demonstrates a teardrop-shaped elevated bladder, and medial deviation with fullness of the right ureter but no hydronephrosis. CT scan shows an extensive pelvic mass effect surrounding the bladder of fat density with areas of higher soft tissue density. The next step is:
A. pelvic laparotomy.
B. weight reduction.
C. corticosteroids.
D. percutaneous biopsy of mass.
E. renal ultrasound in three months.
ANSWER=A
Liposarcoma cannot be excluded without performing pelvic laparotomy. The areas of increased soft tissue density seen on CT scan suggest this diagnosis. Pelvic lipomatosis is another diagnostic consideration. It is twice as common in blacks. Needle biopsy is inadequate to exclude malignancy. Medial deviation of one ureter (right) must make one suspicious of a malignancy rather than pelvic lipomatosis since the latter generally causes symmetrical bilateral abnormalities or no effect on the ureter whatsoever. Findings at laparotomy favoring the diagnosis of lipomatosis are that the fat appears normal and is not encapsulated, whereas liposarcoma and lipoma are encapsulated. Liposarcoma is adherent to surrounding structures; complete surgical removal with adjuvant radiotherapy is recommended. Later ureteral obstruction by pelvic lipomatosis can occur, indicating the need for serial renal imaging. Weight reduction and corticosteroids are of little value.

131. The drug that can be reabsorbed by an ileal neobladder and result in toxic serum levels is:
A. phenytoin.
B. trimethoprim-sulfamethoxazole.
C. sildenafil.
D. warfarin.
E. furosemide.
ANSWER=A
Drugs which are excreted by the kidneys unchanged may be resorbed by the intestinal mucosa in urinary diversions, leading to toxic serum levels. Phenytoin is the only drug listed excreted into the urine unchanged and associated with toxicity in the setting of a urinary diversion.

132. A phenotypically normal three-year-old girl has bilateral inguinal hernias. During a hernia repair, a gonad is discovered within the hernia sac. Frozen section biopsy documents that it is a testis. These findings suggest:
A. persistent mullerian duct syndrome.
B. true hermaphroditism.
C. complete androgen insensitivity.
D. mixed gonadal dysgenesis.
E. adrenogenital syndrome.
ANSWER=C
In phenotypic females undergoing bilateral inguinal hernia repair, 3-5% will have testes located within the hernia sacs. These patients are invariably found to be have a 46 XY karyotype with complete androgen insensitivity secondary to defects in the androgen receptor. The testes will still produce mullerian inhibitory factor resulting in dissolution of the mullerian structures. Despite the presence of androgens, no masculinization or genital ambiguity will develop due to the defect in the androgen receptor. Persistent mullerian duct syndrome is found in phenotypic males with either unilateral or bilateral undescended testes, testicular descent being hindered by the persistence of the internal female organs. True hermahrodites, mixed gonadal dysgenesis and adrenogenital syndrome are associated with genital ambiguity.

133. The incision of the ureteropelvic junction during a percutaneous endopyelotomy should generally be:
A. partial thickness anteriorly.
B. full thickness posteriorly.
C. partial thickness posterolateral.
D. full thickness laterally.
E. full thickness medially.
ANSWER=D
One anatomic study demonstrated a prominent vessel anterior to the UPJ in 65% of kidneys, and posterior to the UPJ in 6.2%. Vessels lateral to the UPJ were not observed. Lateral incision should decrease the risk of vascular injury. Therapeutic regeneration of the ureter is thought to require a full thickness incision.

134. A 57-year-old woman undergoes left partial nephrectomy for a symptomatic angiomyolipoma. Ten days post operatively, she continues to drain 400 cc of urine per day from the flank. The next step is:
A. observation.
B. percutaneous nephrostomy tube.
C. ureteral stent.
D. urethral catheter.
E. surgical exploration.
ANSWER=C
The patient most likely has a urine leak from her partial nephrectomy. These leaks occur in approximately 15% of patients following this surgery. Placement of an internal ureteral stent generally corrects the situation without subsequent need for open repair. Greater than 95% of these patients will seal the leak with placement of a ureteral stent.

135. Urinary concentration is primarily the result of which characteristic of the kidney:
A. hypertonic medullary interstitial fluid.
B. absence of antidiuretic hormone.
C. hypotonic medullary interstitial fluid.
D. high levels of antidiuretic hormone.
E. hypertonic proximal tubular fluid.
ANSWER=A
Although 65% of sodium chloride and water are reabsorbed in the proximal tubule, the intraluminal fluid remains isoosmotic. Urinary concentration takes place as the tubular fluid flows through the medullary collecting ducts. The medullary interstitial hyperosmolarity in the presence of normal plasma concentrations of ADH causes water to diffuse out of medullary collecting ducts into the interstitial fluid and then into the medullary blood vessels. High ADH levels produce a more concentrated urine and low levels produce a more dilute urine.

136. Sarcoidosis induces nephrolithiasis by:
A. increasing PTH secretion.
B. increasing intestinal calcium absorption.
C. decreasing renal tubular calcium absorption.
D. increasing renal tubular calcium absorption.
E. decreasing intestinal calcium absorption.
ANSWER=B
One to 2% of patients with sarcoidosis have increased levels of 1, 25-(0H)2D produced by mononuclear phagocytes in the granulomas. Active vitamin D stimulates intestinal absorption of calcium and phosphate, suppresses PTH secretion and may augment bone resorption.

137. Three days following a right percutaneous nephrolithotomy, green fluid begins to drain through the nephrostomy tube. The patient is afebrile and has no abdominal tenderness. Contrast instilled into the tube immediately outlines the second part of the duodenum. The tube is repositioned into the renal pelvis. The next step is:
A. upper Gl series.
B. nephrectomy and drainage.
C. right retrograde ureteropyelogram.
D. surgical exploration.
E. nasogastric suction and parenteral nutrition.
ANSWER=E
Bowel injuries occur in 0.1% of all cases of percutaneous nephrolithotomy. The most common site injured is the colon which usually occurs when the colon is retrorenal. This circumstance is more likely among patients with a megacolon or malpositioned kidney. When the colon is injured, the nephrostomy tube should be positioned until it is draining the colon (colostomy tube) and a ureteral stent should be placed for drainage of the kidney. Duodenal injuries are very rare and usually occur when the initial needle pass or dilation is made too deeply through the kidney. In the absence of infection (peritonitis), conservative management is indicated initially. Bowel rest should be instituted and adequate urinary tract drainage should be assured.

138. The first branch of the internal iliac (hypogastric) artery is the:
A. obliterated umbilical.
B. superior gluteal.
C. obturator.
D. superior vesical.
E. middle sacral.
ANSWER=B
This artery supplies the pelvic viscera, muscular part of the pelvis and gluteal area. The internal iliac begins at the level of the intervertebral disc between L5 and S1 where it is crossed by the ureter. It is separated from the sacroiliac joint by the internal iliac vein and lumbosacral trunk. It divides into an anterior and posterior division at the edge of the greater sciatic foramen. The posterior trunk is more cephalad and the superior gluteal is the first branch.

139. A 20-year-old man with cystinuria has recurrent calculi despite dietary therapy and hydration. The next step is:
A. acetohydroxamic acid.
B. Tham-E.
C. N-acetylcysteine.
D. D-penicillamine.
E. alpha-mercaptopropionylglycine.
ANSWER=E
Cystinuria should be managed initially with hydration and, perhaps, alkali therapy. The solubility of cystine does not significantly increase until the urinary pH reaches 7.5. At this pH, calcium phosphate precipitation may occur. Specific therapy would include use of either D-penicillamine or alpha-mercaptopropionylglycine. D-penicillamine is less well-tolerated and approximately 50% of patients stop this therapy due to side effects. Tham-E is an alkalinizing agent used for irrigation. Acetohydroxamic acid is a urease inhibitor used for the management of infection stones. Captopril may be effective in reducing urinary cystine excretion in patients who have not responded to therapy with alpha-mercaptopropionylglycine and D-penicillamine or who are intolerant of these agents.

140. The most common symptom or sign of a vesicoenteric fistula is:
A. diarrhea.
B. fecaluria.
C. weight loss.
D. fever.
E. gross hematuria.
ANSWER=B
The most common symptoms or signs of vesicoenteric fistulas are fecaluria, abdominal pain, and pneumaturia (48%, 43%, and 41%

respectively in a recent series). Dysuria, gross hematuria, and diarrhea are less common (28%, 16%, and 11% respectively). Diverticulitis, colon cancer, and Crohn's disease account for 23% to 62%, 18% to 20%, and 6% to 9% of all vesicoenteric fistulas.

141. The posterior surface of the kidney is adjacent to the:
A. quadratus lumborum muscle and diaphragm.
B. psoas and latissimus dorsi muscles.
C. diaphragm and psoas muscle.
D. transversus abdominis and psoas muscles.
E. paraspinous and intercostal muscles.
ANSWER=A
The diaphragm extends around the posterior aspect of the kidney. The anteromedial surface of the kidney is adjacent to the psoas major but the posterior surface lies adjacent to the quadratus lumborum. The transversus abdominus muscle is more ventral.

142. Hyperuricosuria can cause calcium oxalate stones by:
A. homogenous nucleation.
B. reduction of monosodium urate.
C. heterogenous nucleation.
D. permissible incrementation.
E. induction of hypercalciuria.
ANSWER=C
Hyperuricosuria may promote calcium oxalate stone formation. Increased urinary uric acid will generate sodium urate crystals that can act as a nidus to cause precipitation of calcium oxalate crystals (heterogenous nucleation). Therefore, allopurinol is a treatment option for patients with hyperuricosuric calcium oxalate urolithiasis as it decreases urinary uric acid levels.

143. Cyclical hematuria after cesarean section is best treated with:
A. hysterectomy.
B. danazol.
C. surgical exploration.
D. leuprolide acetate.
E. intravesical formalin.
ANSWER=C
A fistula may occur between the bladder and uterus after cesarean section. These injuries may be very hard to diagnose but are usually easy to treat. The fistula is small and typically produces dampness rather than significant incontinence. Hematuria may occur during menses. The fistula site is seen on the posterior bladder wall, and biopsy of the tract reveals chronic inflammation and endometrial tissue. Treatment of vesicouterine fistulae requires dissection of the bladder off the fistula, excision of the fistula site, and bladder and uterine closure. Interposition of omentum may be used. Future child birth is possible.

144. In-vitro fertilization is associated with an increased incidence of which genitourinary anomaly:
A. hypospadias.
B. Wilms' tumor.
C. renal fusion anomalies.
D. exstrophy-epispadias complex.
E. ureteropelvic junction obstruction.
ANSWER=A
In-vitro fertilization is associated with a five-fold increased risk of hypospadias with or without associated cryptorchidism. The increased risk of male genital defects following in vitro fertilization is due to the routine use of supraphysiologic doses of progesterone to aid in embryo implantation following transfer. Progesterone acts as an anti-androgen in three separate ways; 1) Progesterone has weak affinity for the androgen receptor however in supraphysiologic doses it may compete with testosterone for receptor activation. 2) It can block the post-androgen receptor transcription of androgen-stimulated proteins. 3) It can compete with testosterone for metabolism by the enzyme 5-alpha-reductase thereby reducing the formation of the more potent androgen dihydrotestosterone.

145. Medical therapy of idiopathic uric acid renal calculi is directed toward:
A. decreasing purine intake.
B. increasing urinary pH.
C. increasing inhibitors of uric acid crystallization.
D. decreasing uric acid production.
E. decreasing uric acid excretion.
ANSWER=B
Patients with idiopathic uric acid stones have normal production and excretion of uric acid. Their primary abnormality is a relative increase in urinary acidity. At acid pH, uric acid tends to precipitate. Prevention of uric acid crystallization and dissolution of preformed stones is best accomplished by increasing urinary pH to 6.5-7.0. Hydration is also an important part of management.

146. A 45-year-old man has Cushing syndrome. Plasma Cortisol levels are not suppressed with high-dose dexamethasone. Urinary 17-ketosteroid levels are 3124 mcg/24 hr (nl = 7-25) and urinary 17-hydroxysteroid levels are 271 mcg/24 hr (nl = 2-10). The most likely diagnosis is:
A. pituitary adenoma.
B. ectopic ACTH production.
C. adrenal adenoma.
D. adrenal carcinoma.
E. adrenal hyperplasia.
ANSWER=D
This patient has non-suppressing elevated Cortisol and high urinary ketosteriods. Multiple endocrine abnormalities are most common in adrenocortical carcinomas. Ectopic ACTH should not increase urinary ketosteroids.

147. A 45-year-old woman undergoes an abdominal CT scan because of vague abdominal pain and moderate hypertension. This demonstrates a 3.0 cm solid right adrenal mass. The next step is:
A. MRI scan with T1 weighted image.
B. right adrenalectomy.
C. needle biopsy of the mass.
D. iodocholesterol scan.
E. adrenal function studies.
ANSWER=E
Incidentally discovered adrenal masses represent a controversial area in management. Most agree that all lesions 6 cm or greater in diameter should be excised because of the risk of malignancy. With smaller lesions (< 3 cm) the presence of increased steroid or catecholamine production constitutes the major indication for intervention.

148. A 52-year-old woman has the acute onset of right flank pain. She has a long-standing history of diarrhea secondary to laxative abuse. Urinalysis shows numerous RBCs and a pH 6.5. While in the emergency room she passes a small stone. The most likely stone composition is:
A. xanthine.
B. uric acid.
C. struvite.
D. ammonium acid urate.
E. calcium phosphate.
ANSWER=D
Ammonium acid urate stones are rare. They are found in patients with chronic diarrhea and a history of laxative abuse. These patients have low urinary sodium excretion. Their urinary citrate levels are usually low secondary to bicarbonate loss from the gastrointestinal

tract. Urine pH is usually above 6.3; when urine pH is below 5.5 uric acid will likely precipitate. Ammonium acid urate stones are also found in patients with ileal resection or with large portions of their colon removed. Chronic diarrhea and urinary tract infection are additional risk factors. Ammonium acid urate stones are relatively radiolucent and may be mistaken for uric acid stones. Ammonium acid urate stones do not dissolve with alkalinization.

149. A 65-year-old man with a PSA of 40 ng/ml is placed on an LH-RH agonist for metastatic prostate cancer. Six months later, he has mild low back pain. His PSA is 0.4 ng/ml and his bone scan shows improved but persistent abnormalities in the lumbosacral spine. The next step is:

A. flutamide.
B. radiotherapy to the spine.
C. strontium-89.
D. analgesics.
E. orchiectomy.

ANSWER=D

A complete objective response on the bone scan occurs in only 7% of patients after hormonal therapy. The low PSA in this patient indicates that he continues to have a good response to hormonal therapy and no further treatment is indicated.

150. The most important prognostic factor in a patient with Wilms' tumor is:

A. age of the patient.
B. lymph node status.
C. intraoperative spillage.
D. tumor histology.
E. bilaterality.

ANSWER=D

Even though the age of the patient and the size of the tumor have an impact upon the ultimate outcome of children with Wilms tumor, they are not nearly as important as the histology of the lesion. Beckwith has clearly pointed out that children with favorable histology have a far better prognosis regardless of the stage of the lesion at the time of diagnosis than do children with unfavorable histology. Tumor spillage apparently has little to do with the ultimate outcome, and bilateral tumors would statistically appear to have a better prognosis than unilateral tumors.

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aua 2006

1. Corpus cavernosal smooth muscle relaxation caused by nitric oxide is mediated through increased intracellular levels of:
A. cyclic GMP.
B. calcium.
C. acetylcholine.
D. vasoactive intestinal polypeptide.
E. cyclic AMP.
ANSWER=A
Corpus cavernosal smooth muscle relaxation is largely dependent upon the endothelial cell release of endothelial-derived relaxation factor (nitric oxide). Nitric oxide causes smooth muscle relaxation by increasing smooth muscle intracellular cyclic GMP. Penile erection is mediated through a reduction, not an increase, in intracellular calcium. Nitric oxide has no direct effect on acetylcholine and VIP levels. Cyclic AMP levels are increased by endogenous PGE1, VIP, and numerous other neurotransmitters.

2. Cystic fibrosis is associated with infertility as a result of:
A. acrosome absence.
B. necrospermia.
C. absence of the caput epididymis.
D. absence of the vas deferens.
E. ejaculatory duct obstruction.
ANSWER=D
Cystic fibrosis is the most common autosomal recessive disease in whites and often associated with male factor infertility. More than 95% of men with male factor infertility from cystic fibrosis have abnormalities of the Wolffian duct-derived structures manifested usually as congenital bilateral absence of the vas deferens. Spermatogenesis is usually, but not always normal in affected men. Anatomically, the body and tail of the epididymis, seminal vesicles and ejaculatory duct are less likely to be affected. The efferent testicular ducts in the caput epididymis are almost always present and normal.

3. A 55-year-old man with a ten pound weight loss has a T3 (C) prostate nodule. Transrectal biopsy reveals small cell carcinoma. Metastatic workup is negative. The best management is:
A. radical prostatectomy.
B. LH-RH agonist.
C. cystoprostatectomy.
D. external beam radiotherapy.
E. chemotherapy.
ANSWER=E
Small cell carcinoma of the prostate carries a very poor prognosis. In most patients, the course is rapidly fatal. Most patients present with rapid onset of symptoms indistinguishable from other causes of bladder outlet obstruction. Systemic constitutional symptoms are reported in about 10% of cases. Chemotherapy in combination with surgery or radiation appears to be the most important component of management. Radiation is ineffective, as is surgery alone, since most patients have metastatic disease. These tumors are generally not hormonally sensitive.

4. The etiology of erectile dysfunction that responds best to intracavernosal injection of vasoactive agents is:
A. neurogenic.
B. arteriogenic.
C. hypogonadism.
D. venoocclusive dysfunction.
E. post-radiation.
ANSWER=A
Patients with neurogenic impotence exhibit a denervation supersensitivity and develop full erections after intracavernosal vasoactive injections. Patients with arteriogenic erectile dysfunction do not respond to intracavernosal injection therapy in as robust a fashion as patients with neurogenic ED. Venooclusive dysfunction significantly reduces the ability of a patient to respond to injection therapy. Radiation mediates its deleterious effects through combined arterial, neural, and erectile tissue damage, thus resulting in a poorer response to injection therapy.

5. A 42-year-old man has chronic right epididymal and testicular pain for one year after vasectomy that limits his ability to work. Color Doppler ultrasound shows no evidence of inflammation or altered vascularity. He has not responded to antidepressant, NSAIDS, antibiotic therapy, or ilioinguinal nerve blocks or local vasal injections. Abdominal and pelvic CT scan and lumbosacral MRI scan are normal. He has relief after blinded injection of the spermatic cord with 1% lidocaine, but not after blinded injection with saline. He has not responded to stress reduction psychotherapy. The next step is:
A. orchiectomy.
B. reversal of vasectomy.
C. epididymectomy.
D. microsurgical cord denervation.
E. phenol injection of the spermatic cord.
ANSWER=D
Chronic testicular and epididymal pain may be associated with non-genital conditions such as ureteral or radicular lesions. After careful physical examination to rule out hernias, referral to pain management services, scrotal ultrasound and psychologic counseling are recommended. For men with chronic disabling pain, orchiectomy and/or epididymectomy rarely resolve these problems. Patients selected by their response to spermatic cord injection of local anesthetic will often respond to microsurgical cord denervation "stripping." Experience with reversal of vasectomy is inadequate to recommend this as a treatment. Results with orchiectomy or epididymectomy suggest that most of these patients will have persistent pain despite removal of the epididymis and/or gonad.

6. A 75-year-old hypertensive woman has left flank pain. CT scan reveals a 14 cm left renal mass with a 2.5 cm para-aortic lymph node. Percutaneous biopsy of the renal mass reveals leiomyosarcoma. Metastatic evaluation is negative. Optimal therapy is:
A. doxorubicin-based chemotherapy.
B. radical nephrectomy and lymphadenectomy.
C. radical nephrectomy, lymphadenectomy, and external beam radiotherapy.
D. external beam radiotherapy.
E. radical nephrectomy, lymphadenectomy, and adjuvant chemotherapy.
ANSWER=B
Leiomyosarcoma is the most common renal sarcoma. Optimal treatment is excision and, in this case, should include radical nephrectomy as well as removal of the regional lymph nodes. The utility of adjuvant radiation or chemotherapy has not been established, and response rates for measurable disease are low. In this elderly patient at risk of heart disease, reserving such therapy for local recurrence is the best approach.

7. The oral medication most likely to cause priapism is:
A. apomorphine.
B. yohimbine.
C. sildenafil.
D. trazodone.
E. clomipramine.
ANSWER=D
All of the medications have been used to treat male sexual dysfunction. The only drug recognized to cause priapism is trazodone, a centrally acting serotonergic agonist. This occurs in approximately 1:20,000 patients on this drug. This event may not occur during initial exposure to the medication. The general recommendation is that extreme caution should be exercised when this medication is co-prescribed with other agents promoting sexual function.

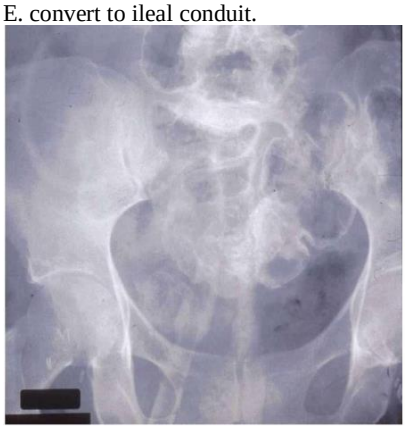
8. A 35-year-old man has gross hematuria. CT scan shows a non-calcified renal pelvic lesion that does not enhance. MRI scan shows a hyperintense signal on T2 image and hypointense T1 image that does not enhance with gadolinium. Urinalysis demonstrated many RBCs and rare WBCs. Urine culture grew 105 cfu/ml of Proteus mirabilis, and urine cytology revealed atypia. The most likely diagnosis is:
A. fungus ball.
B. matrix stone.
C. low grade TCC.
D. papillary necrosis.
E. blood clot.
ANSWER=B
Matrix stones are radiolucent concretions composed of macroproteins and may form as a consequence of an infection with

a urease producing organism. CT scan shows a soft tissue mass without enhancement. Most renal pelvic tumors enhance with gadolinium. While papillary necrosis is a diagnostic consideration, the presence of a Proteus mirabilis infection makes matrix stone more likely.

9. A 72-year-old man with a large renal cell carcinoma has right hip pain. Bone scan shows multiple metastases and plain films of the right femur show a 4.0 cm lytic lesion. The next step is:
A. external beam radiation therapy to the femur.
B. strontium-89.
C. open stabilization of the femur.
D. chemotherapy.
E. immunotherapy.
ANSWER=C
Surgical treatment of bony metastases from renal cell carcinoma is indicated for weightbearing bones with lytic lesions of greater than 3 cm. The risk of fracture is not likely to be reduced with external radiation or strontium-89. Although this patient has a poor prognosis, average survival is one year and, should he develop a femur fracture, the quality of his remaining survival will be markedly diminished.

10. Phosphodiesterase type 5 inhibitor therapy is most efficacious in treating female sexual dysfunction associated with:
A. oophorectomy.
B. hysterectomy.
C. multiple sclerosis.
D. vulvodynia.
E. selective serotonin reuptake inhibitor use.
ANSWER=E
Phosphodiesterase type 5 (PDE5) inhibitor drugs have been used to treat sexual dysfunction resulting from SSRI antidepressant treatment in both men and women with some benefit. The female genitalia possess PDE5 and therefore capable of responding to such drugs. The mechanism by which SSRI's induce sexual function changes in men and women is likely through serotonin alterations at the receptor or transporter level, but are not fully elucidated. Large randomized, placebo-controlled studies are pending.

11. A 55-year-old woman with a history of radiation therapy for cervical carcinoma develops vaginal drainage six months after radical cystectomy and Indiana pouch for TCC of the bladder. She catheterizes the pouch without difficulty and there is no leakage from the efferent limb. A pouchogram is shown in the exhibits. The next step is:
A. low residue diet.
B. continuous catheter drainage of the pouch.
C. vaginal repair with Martius flap.
D. transabdominal repair with omental interposition.
E. convert to ileal conduit.



ANSWER=D
In the setting of prior radiation a fistula between the pouch and the vagina is unlikely to heal with conservative measures. The pouch is otherwise functioning well and should be salvageable, with excision of the diseased segment, primary closure, and interposition of omentum. Because of the distance from the pouch to the vaginal cuff, transvaginal repair is unlikely to be successful.

12. A 50-year-old woman has acute left flank pain. Her hemoglobin is 7 gm/dl, and creatinine 1.2 mg/dl. CT scan shows a 15 cm lower-pole left renal mass and a large perinephric hematoma. There are low-density areas (Hounsfield units of -30) within the mass. After transfusion, the next step is:
A. observation.
B. selective angiographic embolization.
C. radical nephrectomy.
D. partial nephrectomy.
E. radio frequency ablation.
ANSWER=B
The negative Hounsfield units on the CT scan indicate the presence of fat in the tumor, showing that this is a renal angiomyolipoma which has bled acutely. Angiographic embolization is often successful in these tumors, can be performed quickly without the need for general anesthetic, and can usually preserve the normal portion of the kidney. An alternative would be open lower pole partial nephrectomy, once the patient is stabilized. Radical nephrectomy should be reserved for those kidneys with large central lesions or multiple tumors not amenable to partial nephrectomy. Laparoscopic nephrectomy would be very difficult in the face of recent acute hemorrhage. Radio frequency ablation should not be used for such a large tumor.

13. The intracavernosal vasoactive agent trimix (papaverine /phentolamine/ prostaglandin *E-i)* functions through which of the following mechanisms:
A. phosphodiesterase inhibition/ alpha-adrenergic blockade/ increase in cAMP levels.
B. phosphodiesterase inhibition/ alpha-adrenergic blockade/ nitric oxide synthesis.
C. phosphodiesterase inhibition/ alpha-adrenergic blockade/ rho-kinase inhibition.
D. rho-kinase inhibition / alpha-adrenergic agonism/ increase in cAMP levels.
E. beta-adrenergic agonist/ alpha-adrenergic blockade/ increase in cGMP levels.
ANSWER=A
The widely used intracavernosal injection agent trimix has efficacy rates over 90%. Papaverine is a non-specific phosphodiesterase

inhibitor, phentolamine is an alpha-adrenergic blocker and PGE1 elevates intracellular cAMP levels.

14. A 55-year-old diabetic woman has left flank pain, malaise, and weight loss. Herbtemperature is 102° F. Renal ultrasound demonstrates an enlarged left kidney with calcifications. The most common organism associated with this condition is:
A. Pseudomonas.
B. Proteus.
C. Klebsiella.
D. Enterococcus.
E. E. coli.
ANSWER=E
Xanthogranulomatous pyelonephritis (XGP) is a rare form of renal infection associated with poorly functioning kidneys, renal masses or enlargements, and calculous disease or dystrophic calcifications. XGP is most commonly seen in middle-aged or older women, especially diabetics and patients who are immuno-compromised or have frequent UTIs. The most common organism associated with XGP is E. coli in 50% of cases with Proteus the second most common pathogen.

15. A 19-year-old hypertensive man with intermittent gross hematuria has a 12 cm solid lower pole right renal mass demonstrated on CT scan. Contralateral renal function is normal, and there is no evidence of metastatic disease. The next step is:
A. renal arteriogram.
B. CT-guided needle biopsy of the mass.
C. venacavogram with renin determinations.
D. partial nephrectomy.
E. radical nephrectomy.
ANSWER=E
The scenario is most consistent with either Wilms' tumor or renal cell carcinoma, either of which may cause hypertension. Both should be treated with radical nephrectomy. An arteriogram is invasive and not likely to add useful information. Needle biopsy of the mass risks hemorrhage and implantation of cancer cells along the tract. Renal vein renin determination with venacavography is not indicated. Partial nephrectomy is not the first choice in tumors this large when the contralateral kidney is normal.

16. Which statement concerning the International Index of Erectile Function (IIEF) questionnaire is correct:
A. a score of greater than 24 indicates the absence of erectile dysfunction.
B. a score of less than or equal to 10 indicates severe erectile dysfunction.
C. the questionnaire has domains addressing patient and partner satisfaction.
D. a clinically meaningful change is defined as a 2-point improvement in each question.
E. each question is scored on a 10-point scale.
ANSWER=B
The IIEF is the gold standard instrument for evaluating sexual function and response to pharmacotherapy. It has 15 Questions divided into 5 domains, erectile function, libido, orgasm, intercourse satisfaction and overall satisfaction. Each Question is scored on a 5-point scale, 5 representing always or almost always and 1 representing never or almost never. Questions 1-5 and 15 are grouped into the erectile function domain and is scored from 6-30 for the sexually active male. Absence of activity is scored 0. An erectile function domain score greater than or equal to 26 is deemed to represent normal function, while a score less than or equal to 10 represents severe ED. Finally, it is believed that a 1-point or more increase in each domain represents a clinically meaningful alteration.

17. The intervention that will reduce renal pelvic pressure during ureteroscopy is:
A. administration of ketorolac.
B. administration of I.V. mannitol.
C. use a smaller caliber ureteroscope.
D. use a ureteral access sheath.
E. use a constant-flow automated irrigation pump.
ANSWER=D
A number of maneuvers can reduce renal pelvic pressure during ureteroscopy, including placement of nephrostomy tube, placement of a ureteral catheter alongside the ureteroscope and placement of a bladder catheter to keep the bladder decompressed. Cadaver and clinical studies demonstrated reduced renal pelvic pressures with use of a ureteral access sheath during ureteroscopy, particularly when the position of the proximal end of the access sheath was advanced in the ureter to the level of the ureteroscope. Use of a ureteral access sheath may increase the safety of lengthy ureteroscopic procedures and reduce the likelihood of absorption of infected fluids when treating patients with infected stones. Ketorolac will decrease renal blood flow, but will not produce a significant decrease in renal pelvic pressure in this setting.

18. A 55-year-old man undergoes a left lower pole partial nephrectomy for a 3.5 cm solid renal mass. The contralateral kidney is normal. Two days postoperatively, his serum hematocrit drops from 32% to 23% over 24 hours. Urine is dark burgundy in color. Vital signs are stable. The next step is:
A. angiography and embolization of bleeding vessels.
B. reoperation with suture ligation of bleeding vessels.
C. reoperation with nephrectomy.
D. bedrest, serial monitoring, and transfusions as needed.
E. ureteral stent placement.
ANSWER=D
Complications of partial nephrectomy include hemorrhage, urinary fistula formation, ureteral obstruction, renal insufficiency, and infection. Significant intraoperative bleeding can occur in patients who are undergoing partial nephrectomy. The need for early control and ready access to the renal artery is emphasized. Postoperative hemorrhage may be self-limiting if confined to the retroperitoneum, or it may be associated with gross hematuria. The initial management of postoperative hemorrhage is expectant with bedrest, serial hemoglobin, and hematocrit determinations, frequent monitoring of vital signs, and blood transfusions as needed. Angiography may be helpful if bleeding persists, to localize actively bleeding segmental arteries, which may be controlled by angioinfarction. Severe intractable hemorrhage may necessitate re-exploration with early control of the renal vessels and ligation of the active bleeding points.

19. The combination of detrusor areflexia and impotence is most apt to occur following:
A. radiation for prostate cancer invading the bladder base.
B. proctocolectomy for ulcerative colitis.
C. bilateral renal transplantation to the hypogastric arteries.
D. abdominal perineal resection for rectal cancer.
E. radical perineal prostatectomy for prostate cancer.
ANSWER=D
The only listed procedure responsible for an appreciable incidence of injury to the nerve affecting bladder and erectile function is abdominal perineal resection for rectal cancer. Radiation therapy causes ED through structural alterations in erectile tissue and cavernosal arteries (and arteritis obliterans). Radiation therapy does not cause detrusor areflexia. Proctocolectomy and bilateral renal transplant surgery do not interfere with the neural supply to the bladder or penis. Radical perineal prostatectomy is performed below the urogenital diaphragm and thus does not affect the neural supply to penis or bladder. Bilateral renal transplantation utilizing the hypogastric arteries may cause erectile dysfunction, but is unlikely to alter bladder function.

20. A 46-year-old woman has known tuberculosis and new onset hematuria. CT scan demonstrates a poorly functioning upper pole of the right kidney with an upper pole fluid collection. The left kidney is normal. The best treatment is:
A. ureteral stent.
B. immediate right upper pole nephrectomy.
C. right upper pole nephrectomy following six weeks of antituberculous therapy.
D. antituberculous therapy with close radiographic follow-up.
E. immediate right simple nephrectomy.
ANSWER=C
In genitourinary tuberculosis, effective chemotherapy requires operative intervention for adequate effect. Many devitalized areas of the urinary tract are not adequately exposed to these chemotherapeutic agents. When surgery is indicated for the removal of irreversibly damaged tissue to reduce the burden of infection, these surgical procedures are best performed after at least six weeks

of anti-tuberculosis therapy. This surgery should remove any nonfunctioning tissue containing viable organism facilitating the penetration of antibiotics in the surrounding healthy issue.

21. A 60-year-old-man undergoes percutaneous drainage of a lymphocele three weeks following radical prostatectomy. Three weeks later he has continued drain output, fever, and leukocytosis despite oral antibiotics. A repeat CT scan shows incomplete drainage. The next step is:
A. observation.
B. sclerotherapy.
C. intravenous antibiotics.
D. place another percutaneous drain.
E. laparoscopic unroofing.
ANSWER=D
This patient has an infected lymphocele that has been inadequately drained. It is unlikely after three weeks that the situation will improve spontaneously or with intravenous antibiotics alone, and additional intervention is warranted because the patient is still ill. Laparoscopic unroofing and sclerotherapy are contraindicated for an infected lymphocele. Placement of a second drain percutaneously is most likely to resolve the problem promptly. An alternative but more invasive option is open extraperitoneal drainage, which would be indicated if placement of a second drain fails.

22. An asymptomatic 52-year-old man wishes to donate a kidney to his HLA-identical sister. Urinalysis is normal and his serum creatinine is 0.9 mg/dl. CT scan reveals a normal right kidney and a left ureteropelvic junction obstruction with well-preserved cortex. The next step is:
A. exclude from donation.
B. right donor nephrectomy.
C. endopyelotomy with delayed left donor nephrectomy.
D. left donor nephrectomy with dismembered pyeloplasty.
E. left donor nephrectomy with native ureteropyelostomy.
ANSWER=E
This donor with an asymptomatic ureteropelvic junction obstruction and no urologic history need not be excluded from donation. However, the donor should always be left with a normal kidney and therefore the left kidney should be chosen for donation. The diagnosis of UPJ obstruction is made radiographically and is independent of whether or not the ureter appears anatomically patent at the time of intraoperative evaluation. Left donor nephrectomy should be done using the native ureter to allow restoration of urinary continuity with a ureteropyelostomy. Dismembered pyeloplasty using the donor ureter will result in ureteral necrosis.

23. A 38-year-old woman has intermittent dull right flank pain. Urinalysis demonstrates a pH of 5.5 and microhematuria. A KUB suggests a 1.4 cm slightly opaque right lower pole renal stone. A CT scan confirms a stone with an attenuation coefficient of 225 Hounsfield units. There is no hydronephrosis. The next step is:
A. observation.
B. potassium citrate.
C. SWL.
D. ureteroscopic laser lithotripsy.
E. percutaneous nephrolithotomy.
ANSWER=B
This patient's stone is most likely composed of uric acid. The clues to this diagnosis are the low urinary pH and low attenuation coefficient of the stone. Hounsfield units can be used to differentiate uric acid from calcium stones; uric acid stones average approximately 300 Hounsfield units, while calcium oxalate stones average 650. Some uric acid stones are radio-opaque. Urinary pH manipulation should be initially considered for this patient as she has minimal symptoms and there is no hydronephrosis.

24. A 70-year-old man with a long history of LUTS on tamsulosin develops acute urinary retention eleven days following cryosurgery for clinical T2, Gleason 6 prostate cancer. The next step is bladder drainage and:
A. TURP.
B. prostatic stent.
C. leuprolide acetate.
D. finasteride.
E. observation.
ANSWER=E
Transient symptoms of outlet obstruction are common immediately after cryosurgery, often due to the urethral sloughing that can occur if the urethral warming catheter is not adequate. Management is temporary bladder drainage, and the symptoms generally resolve within a few weeks without additional treatment. Because obstruction is generally due to devitalized tissue, alpha blockers and hormone therapy are generally not effective. TURP may be indicated if retention persists. .

25. A 30-year-old woman wishes to become pregnant following renal transplantation. Her serum creatinine is 1.2 mg/dl. She should be counseled that pregnancy will likely be associated with:
A. fetal genetic abnormality.
B. preterm delivery.
C. allograft rejection.
D. preeclampsia.
E. intrauterine growth retardation.
ANSWER=B
With increased long term success of renal transplantation, many women of childbearing age wish to become pregnant. Successful renal transplantation usually restores fertility in premenopausal women. A large study of pregnancies following renal transplantation has confirmed the safety of pregnancy in such patients: 94% of pregnancies that progressed beyond the first trimester were successfully completed. The most common outcome was preterm delivery (50%), followed by preeclampsia (30%), intrauterine growth retardation (20%), and rejection (10%). There is no increased risk of fetal genetic abnormalities. Renal transplant function may be adversely affected in pregnancy if the serum creatinine is > 1.5 mg/dl.

26. During metabolic stone evaluation, a 35-year-old man has a urine pH of 5.45 and total urinary uric acid of 368 mg/day (normal < 650 mg/day). His urinary uric acid level rises to 1079 mg/day after one month of potassium citrate therapy. The rise in his urinary uric acid level is due to:
A. increased dietary purine intake.
B. increased purine turnover.
C. increased production of endogenous uric acid.
D. resuspension of urinary uric acid.
E. inhibition of xanthine oxidase.
ANSWER=D
Examination of the initial 24-hour urine collection from this patient, would note small white crystals at the bottom of the urine container. These are uric acid crystals that have precipitated out of solution. Uric acid precipitation is due to the urine pH being below the PKA of uric acid (less than 5.5). Once the urine pH is raised above 5.5 with alkali therapy (in this case potassium citrate), the uric acid will go back into solution and the true solubilized uric acid level can be calculated by analysis of this 24-hour urine specimen.

27. A 52-year-old man has a radical prostatectomy with final pathology showing Gleason 8 adenocarcinoma with left seminal vesical invasion but negative surgical margins and lymph nodes. PSA at three months is < 0.1 ng/ml, but at six months it is 0.6 ng/ml and two months later it is 1.2 ng/ml. The next step is:
A. observation.
B. radiation therapy.
C. leuprolide.
D. bicalutamide.
E. chemotherapy.
ANSWER=C
This patient has a rapid recurrence and a very aggressive (Gleason 8) carcinoma. He is very unlikely to have a local recurrence only, and would be a poor candidate for salvage radiation therapy. Rapid PSA doubling time has been shown to correlate with development of metastatic disease and early mortality due to prostate cancer. Although observation is an option and should be discussed, he is likely to require treatment soon. Hormone therapy with leuprolide is the best option, and he could be considered for an intermittent therapy protocol as well. Oral bicalutamide monotherapy has not been proven to be equivalent to LH-RH agonists in this setting.

28. A 42-year-old woman has gross hematuria and graft tenderness one year after cadaveric renal transplantation. Serum creatinine is 7.9 mg/dl and renal biopsy shows severe

fibrosis. Color doppler ultrasound reveals minimal allograft blood flow. Immunosuppression has been tacrolimus, mycophenolate mofetil, and steroids. The next step is:
A. discontinue tacrolimus, repeat biopsy in one week.
B. steroid bolus, repeat biopsy in one week.
C. cystoscopy.
D. renal arteriography.
E. allograft nephrectomy.
ANSWER=E
This patient has symptomatic and irreversible chronic allograft nephropathy. There is no role for a trial of calcineurin (cyclosporin or tacrolimus) sparing or increasing immunosuppression in this setting. Similarly, minimal therapeutic guidance will be obtained from either arteriography or cystoscopy other than attempting localization of the source of the hematuria to the transplant ureter, but this will not alter the appropriate action, allograft nephrectomy.

29. The primary cause of uric acid stone formation in patients with an ileostomy is:
A. dehydration.
B. hyperuricemia.
C. high urinary pH.
D. hyperuricosuria.
E. malabsorption.
ANSWER=A
The major causes of uric acid stone formation are dehydration, hypercosuria and low urine pH. In patients with an ileostomy, dehydration is a major problem because of the high loss of water and solutes from the ileostomy. This is believed to be the major inciting reason for the formation of uric acid stones in these patients. Bicarbonate loss may also occur from ileostomy drainage. If excessive, a low urinary pH may occur and contribute to decreased uric acid solubility.

30. A 57-year-old man has persistent urinary leak of 1500 ml/day from his closed suction pelvic drain five days following a laparoscopic radical prostatectomy. His Foley catheter remains in the bladder. A cystogram shows extravasation at the anastomosis and the drains are adjacent to this area. The next step is:
A. revise anastomosis.
B. suprapubic cystostomy.
C. advance drain and discontinue suction.
D. remove drain.
E. bilateral nephrostomies.
ANSWER=C
This patient has a persistent urine leak from the urethrovesical anastomosis five days following a radical prostatectomy. The cystogram confirms the site of persistent extravasation at the urethrovesical junction, and the closed suction JP drain is noted in close proximity. If the drain is found to be on or near the anastomosis, the leakage will likely not resolve spontaneously until the drain is repositioned. The Foley catheter is in good position and thus repositioning it would not improve the leakage. Furthermore, replacing it may be difficult, is unnecessary and risks disrupting the anastomosis further. While removing the drain may solve the problem, the patient is at risk to develop a urinoma until the urine leak resolves. Bilateral nephrostomy tubes are a consideration if this maneuver is unsuccessful. Open revision of the anastomosis is rarely performed since most cases resolve with conservative management.

31. A 21-year-old man with cafe-au-lait spots and cutaneous fibrous tumors is hypertensivebthree years after excision of a cerebellar hemangioma. The most likely cause of his elevated blood pressure is:
A. primary hyperaldosteronism.
B. essential hypertension.
C. adrenal cortical carcinoma.
D. renal artery stenosis.
E. juxtaglomerular cell tumor.
ANSWER=D
This patient has neurofibromatosis, which is characterized by cafe-au-lait cutaneous pigmentation, cutaneous neurofibromas, CNS tumors, and skeletal disorders. Hypertension in these patients is most often due to renal artery stenosis, that is characterized by fibrosis and thickening of the intima, proliferation of neural tissue within the arterial wall, perivascular nodular proliferation, and occasional aneurysmal dilatation. The angiographic appearance may be indistinguishable from that of intimal fibroplasia. Hypertension in this setting is less commonly the result of associated pheochromocytoma or aortic coarctation. Conn's syndrome is a form of primary hyperaldosteronism characterized by hypertension, hypokalemia, hypernatremia, alkalosis, and periodic paralysis caused by an aldosterone-secreting adenoma. Adrenal cortical carcinomas and juxtaglomerular cell tumors can be associated with hypertension, but are not likely in the clinical setting described. Essential hypertension is uncommon in this age group.

32. Non-dilated obstructive uropathy is most commonly associated with:
A. diabetes insipidus.
B. psychogenic polydipsia.
C. vesicoureteral reflux.
D. retroperitoneal fibrosis.
E. acute pyelonephritis.
ANSWER=D
Retroperitoneal fibrosis is due to drugs (methysergide, bromocriptine, beta-blockers), irradiation, surgery, aortic aneurysms, and retroperitoneal diseases such as pancreatic tumors, and lymphoproliferative diseases. Renal ultrasound may be normal in patients with retroperitoneal fibrosis because of the limited ability of the ureter/renal pelvis to dilate due to the fibrosis. Diabetes insipidus, polydipsia, reflux, and acute pyelonephritis cause non-obstructive urinary tract dilation.

33. A 57-year-old man has recurrent calcium oxalate monohydrate and uric acid stones. The underlying metabolic abnormality can best be determined with:
A. urine pH.
B. serum uric acid.
C. urinary uric acid crystals.
D. 24-hour urinary uric acid.
E. sodium nitroprusside test.
ANSWER=A
Patients with gouty diathesis (idiopathic low urine pH) can form either uric acid or calcium stones. These patients form calcium stones by heterologous nucleation on uric acid crystals. The most important diagnostic test in patients with gouty diathesis is urine pH, with these patients consistently having a urine pH below 5. Alkalinization with potassium citrate will prevent formation of both uric acid and calcium oxalate stones in patients with gouty diathesis.

34. A 28-year-old man with quadriparesis following transverse myelitis has episodic hypertension, headache, and nausea. His bladder is drained via suprapubic catheter. The best diagnostic test is:
A. 24-hou r u ri ne VM A.
B. plasma catecholamines.
C. CMG with blood pressure monitoring.
D. clonidine suppression test.
E. trial of CIC.
ANSWER=C
It is most likely that this patient has autonomic dysreflexia that should be elicited easily by a CMG prior to diagnostic efforts made to identify a pheochromocytoma. CMG should be done with blood pressure monitoring. The presence of an indwelling catheter does not prevent dysreflexia. Clean intermittent catheterization will not aid in the diagnosis of autonomic dysreflexia, although, it is an effective treatment for the patient's neurogenic bladder.

35. A 50-year-old African American woman has passed multiple calcium oxalate dihydrate stones. On allopurinol and potassium citrate, repeat metabolic evaluation demonstrates serum calcium of 13.4 mg/dl, phosphorus 3.7 mg/dl, intact PTH 10 pg/dl (normal < 65 pg/ml), and urinary calcium of 598 mg/day (normal < 250 mg/day). The next step is:
A. neck exploration.
B. abdominal CT scan.
C. calcium load test.
D. chest CT scan.
E. fasting urinary calcium.
ANSWER=D
Calculi may be the initial feature of sarcoidosis in a small percentage of patients. In those individuals who present with hypercalcemia,

normal to increased serum phosphate, and low or low normal intact serum PTH, sarcoidosis should be suspected. Increased I-25 dihydroxy Vitamin D levels in these patients will increase the intestinal absorption of calcium and suppress PTH secretion. Steroids will decrease intestinal absorption of calcium and should normalize both hypercalcemia and hypercalciuria.

36. A 48-year-old woman develops a vesicovaginal fistula five days after vaginal hysterectomy. Cystoscopy shows a small area of erythema just proximal to the trigone. Bilateral retrograde pyelograms are normal. Although vaginal leakage of urine persists, the majority of urine is voided normally. The next step is:
A. fulgurate fistula.
B. bilateral externalized ureteral stents.
C. immediate fistula repair.
D. Foley catheter.
E. suprapubic cystostomy.
ANSWER=D
In this patient, a trial of conservative management using urethral catheter drainage is indicated because of the size of the fistula and the brief interval after the surgery. Given that the patient has no prior history of radiation or pelvic surgery, tissues should be adequately vascularized, mobile, and capable of healing. Should catheter drainage fail, early repair may be done using a vaginal approach. Fulguration is not necessary unless conservative therapy fails.

37. Following the removal of a frontal lobe meningioma, detrusor function will most likely be:
A. coordinated with urge incontinence.
B. coordinated but with increased residual urine.
C. uncoordinated due to detrusor-sphincter dyssynergia.
D. uncoordinated due to detrusor areflexia.
E. uncoordinated due to primary bladder neck dyssynergia.
ANSWER=A
Areas above the brainstem are generally inhibitory in function relative to detrusor function. Injuries as a result of trauma or surgery to areas above the brainstem usually result in precipitous, complete voiding related to detrusor hyperreflexia with sphincteric coordination facilitated by an intact brainstem. True detrusor-sphincter dyssynergia is seen in patients with spinal cord injury and multiple sclerosis, but does not occur with supratentorial lesions.

38. The initial nephrostomy tube puncture site in a horseshoe kidney compared to that in a normally positioned kidney is more:
A. medial and through a posterior calyx.
B. lateral and through an anterior calyx.
C. medial and through an anterior calyx.
D. lateral and through a posterior calyx.
E. inferior and through an anterior calyx.
ANSWER=A
Horseshoe kidneys may develop renal calculi, possibly as a result of high insertion of the ureter and relative stasis of urine. Patients with small, nonobstructing calculi in nondependent locations may be treated with SWL. However, obstructing calculi or those that are large or in dependent locations are best treated with percutaneous techniques. The initial puncture is more medial than that for normally positioned kidneys and should be placed through a posterior calyx.

39. During transvaginal repair of a high vesicovaginal fistula, a Martius flap is harvested, but is of insufficient length to reach the fistula site. The next step is:
A. myocutaneous gracilis flap.
B. gluteal flap.
C. omentum.
D. peritoneal flap.
E. myocutaneous labial flap.
ANSWER=D
Uncomplicated vesicovaginal fistulas can be closed using meticulous technique and a multi-layer closure. Repair of more complex fistulas often requires the use of well-vascularized tissue flaps positioned between the bladder and vaginal repair sites. The use of Martius (fibrofatty tissue), myocutaneous labial (skin and fibrofatty tissue) or, more rarely, gluteal skin flaps can be used to repair low fistulas. Such flaps may not be of sufficient length to reach high fistulas. Peritoneal flaps can be harvested through the vaginal incision and are in close proximity to such fistulas. Use of peritoneum obviates the morbidity of an abdominal incision (necessary for harvesting the omentum) or an incision along the inner thigh (necessary for harvesting the gracilis muscle).

40. A 22-year-old incontinent man with a complete C-7 spinal injury has a residual urine of 200 ml six months after a sphincterotomy. Repeated urine cultures are negative. Renal ultrasound is normal. A pressure-flow study shows a maximum voiding pressure of 18 cm H20 with a peak flow of 10 ml/sec. VCUG shows no VUR but a narrow bladder neck. The best management is:
A. resection of the bladder neck.
B. repeat sphincterotomy.
C. bethanechol and phenoxybenzamine.
D. condom catheter drainage.
E. CIC.
ANSWER=D
Efficacy of sphincterotomy can be determined by the maximum voiding pressure which in this case is low. Although the patient does not empty to completion the residual is not significant as long as the resting and voiding pressures remain low (< 40 cm of H20). The patient will not benefit from a repeat sphincterotomy or resection of the bladder neck. Bethanechol and phenoxybenzamine are not likely to improve emptying. With the patient's low voiding pressure he is an ideal candidate for condom catheter drainage, as he is at low risk of infection. CIC will be difficult for this patient to perform given his C-7 injury.

41. The treatment that will most likely reduce stone formation in a patient with recurrent nephrolithiasis due to distal renal tubular acidosis is:
A. thiazide diuretics.
B. sodium bicarbonate.
C. potassium citrate.
D. pyridoxine.
E. orthophosphates.
ANSWER=C
Distal (type 1) renal tubular acidosis is a common cause of severe stone disease and is associated with inappropriately high urinary pH, hypercalciuria, and hypocitraturia. These features promote formation of calcium oxalate and calcium phosphate stones. Therefore, the best treatment to reduce the risk of stone formation is an agent that increases urinary citrate. Clinical studies have shown that potassium citrate therapy may be effective. Sodium bicarbonate and sodium citrate are reasonable alternatives for those who are potassium intolerant. However, the sodium load may augment calcium excretion. Thiazide therapy would further reduce citrate excretion. The administration of orthophosphates may decrease calcium excretion but would also increase phosphate excretion; the latter further promoting calcium phosphate stone formation. Pyridoxine therapy may result in a decrease in oxalate excretion and has been shown to be effective in some patients afflicted with type I primary hyperoxaluria.

42. A newborn boy had prenatal bilateral hydroureteronephrosis. Postnatal ultrasound reveals bilateral moderate caliectasis and markedly dilated ureters. Serum creatinine is 0.4 mg/dl. VCUG is normal. A diuretic renogram shows prompt uptake of radionuclide, but the washout is indeterminate. The next step is:
A. pressure perfusion (Whitaker) test.
B. ureteral reimplantation with tailoring.
C. temporary cutaneous ureterostomies.
D. observation.
E. prophylactic antibiotics.
ANSWER=E
This patient has congenital megaureters. These have been shown to have a high spontaneous improvement rate and hence observation is recommended in most asymptomatic cases. There is a high rate of UTI and prophylactic antibiotics are recommended.

43. A 39-year-old healthy woman has urinary urgency. Pelvic exam is normal. Pressureflow study reveals a detrusor pressure of 25 cm H2O with a flow of 5 ml/sec. The most likely diagnosis is:
A. normal voiding status.

B. overactive bladder.
C. primary bladder neck obstruction.
D. urethral syndrome.
E. intrinsic sphincter deficiency.
ANSWER=C
The presentation suggests primary bladder neck obstruction, observed in approximately 3% of women with lower urinary tract symptoms. The cause of this condition is not known. The criteria for this diagnosis is controversial, but at least one investigator has suggested a detrusor pressure > 20 cm H20 with low-flow is diagnostic of obstruction for women. The obstruction is commonly identified at the bladder neck. Management consists of transurethral bladder neck resection.

44. A 25-year-old man with AIDS has chills, fever, urinary frequency and dysuria. Urine culture demonstrates 105 colonies/ml of Candida albicans. CT scan is normal. The next step is:
A. I.V. amphotericin B.
B. bladder irrigation with amphotericin B.
C. oral flucytosine.
D. oral fluconazole.
E. oral ketoconazole.
ANSWER=D
It is not always necessary to treat Candida UTIs. Very little is gained and it may be counter productive to eradicate Candida from the urine of an asymptomatic patient, particularly those with long term indwelling catheters. Symptomatic patients, however, may benefit from treatment. Previously, amphotericin B was the only satisfactory drug for treatment of Candidal urinary tract infection. It can be administered intravenously or by irrigation. Oral fluconazole is highly effective for Candiduria. It has the advantage over bladder irrigation with amphotericin B of not requiring catheterization. It is as effective as amphotericin B in patients with uncomplicated symptomatic candidal UTIs. Ketoconazole and flucytosine are less effective than fluconazole and are not recommended.

45. A patient with an ileal conduit urinary diversion is undergoing renal function tests. The parameter that can be most accurately measured is:
A. creatinine clearance.
B. urinary concentrating ability.
C. fractional excretion of sodium.
D. acid loading.
E. proteinuria.
ANSWER=C
Measuring renal function in patients with intestinal diversion may be difficult. Most parameters of renal function will be affected by the intestinal absorption of various substances in the urine, including creatinine and urea, as well as secretion of alkalinizing substances and alteration in the osmotic content. Sodium handling in ileal segments is not markedly altered as ammonium substitutes for sodium in the Na/H antiporter in the bowel lumen.

46. A 53-year-old man has mild lower urinary tract symptoms. The appropriate initial evaluation includes focused history and physical exam, AUA Symptom Score, urinalysis and:
A. postvoid residual.
B. serum creatinine.
C. PSA.
D. PSA and uroflow.
E. PSA and videourodynamics.
ANSWER=C
Based on the AUA guidelines of 2003, the initial evaluation of an otherwise healthy patient should include a history and focused physical exam including digital rectal exam and neurologic function, a urinalysis, and PSA if the patient has a life expectancy over ten years. Serum creatinine is not indicated unless other abnormalities are detected. Uroflow, videourodynamics, and postvoid residual are not usually necessary prior to the institution of watchful waiting or medical therapy.

47. A 25-year-old college student has penile pain, burning and itching during erection, and difficulty retracting the foreskin. Examination reveals a whitish plaque on the foreskin, and a smaller, similar lesion on the ventral glans adjacent to the coronal sulcus. Pathology from a circumcision reveals balanitis xerotica obliterans (BXO). The next step is:
A. topical 5-FU.
B. abdominal and pelvic CT scan.
C. urethroscopy and retrograde pyelography.
D. excise glans lesion and reconstruction.
E. topical application of triamcinolone.
ANSWER=E
Balanitis xerotica obliterans (BXO) is a benign condition that presents with phimosis and acquired meatal stenosis. The atrophic white plaques of BXO need to be distinguished histologically from leukoplakia, erythroplasia of Queyrat (10% risk of malignant transformation) and Bowen's disease (concomitant visceral malignancy). The cause of BXO is unknown although an autoimmune association with thyroid antibodies has been reported. Meatal or parameatal BXO is associated with intraurethral involvement and endoscopy/retrograde urethrography is required for evaluation. Local application of 0.1% triamcinolone ointment may control symptoms of burning and itching.

48. The hormone that is synthesized in the zona glomerulosa of the adrenal cortex is:
A. androstenedione.
B. **Cortisol.**
C. aldosterone.
D. dihydrotestosterone.
E. 11-deoxycorticosterone.
ANSWER=C
The outer zone of the adrenal, the adrenal cortex, comprises more than 80% of the gland. The cortical layers, from outside to inside, are the glomerulosa, fasciculata and the reticularis. The zona glomerulosa is the only source of the major mineralocorticoid aldosterone. The fasciculata produces glucocorticoids and the reticularis produces androgens.

49. A 64-year-old man had a TURP six months ago and has an International Prostate Symptom Score (IPSS) of 5. He has persistent gross hematuria requiring cystoscopy and clot evacuation. Friable prostatic tissue was noted during cystoscopy. He does not wish to undergo further surgical treatment. The next step is:
A. terazosin.
B. finasteride.
C. terazosin and finasteride.
D. abarelix.
E. saw palmetto.
ANSWER=B
Finasteride is very effective in the management of gross hematuria after TURP for BPH. None of the other listed treatments (e.g., terazosin, saw palmetto [Serenoa repens]) have efficacy or have not been evaluated (e.g., abarelix) in this setting.

50. Cranberry juice may help prevent UTI by reducing:
A. urine pH.
B. urine osmolality.
C. secretory IgA.
D. bacterial adhesion.
E. interleukin 6 (IL-6).
ANSWER=D
A variety of host defense and bacterial virulence factors contribute to the pathogenesis of UTIs. Host defenses include high urine osmolality, low pH, high urea, efficient micturition, a number of urine inhibitors of bacterial adherence, e.g., Tamm-Horsfall protein, lactoferrin, oligosaccharides and mucopolysaccharides. Immune responses to UTIs affect hormonal immunity (secretory IgA) as well as cytokine production (IL6, IL8). Cranberry juice contains substances that inhibit the adherence of uropathogenic bacteria to uroepithelial cells. Cranberry ingestion does not have a substantive effect on urine pH.

51. Patients on chronic hemodialysis may have a tendency to bleed excessively during surgery. This is due to:
A. thrombocytopenia.
B. inadequate levels of Vitamin K.
C. hypofibrinogenemia.
D. thromboplastin deficiency.
E. a qualitative platelet defect.

ANSWER=E
In patients with chronic renal failure, blood clotting is abnormal because of platelet dysfunction resulting from a deficiency of von Willebrand factor multimers and the presence of small molecules that impair platelet function. Because of the qualitative platelet defect, the most sensitive test to predict the occurrence of bleeding is the determination of a bleeding time.

52. A 72-year-old woman has nocturia x 2, without bothersome urinary frequency or urgency. She has restricted evening fluid intake. Her measured voided volumes at night range between 300 to 400 ml. Physical examination, urinalysis, urine cytology, and postvoid residual determinations are normal. The next step is:
A. observation.
B. voiding diary.
C. anticholinergic therapy.
D. CMG.
E. cystourethroscopy.
ANSWER=A
There is an increased incidence of nocturia in the elderly as a normal physiologic response. The condition is associated with an age-related decline in renal concentrating ability. In people older than 70 years of age, voiding twice during the night is normal. Her presentation is informative enough to exclude other major causes of nocturia, and further diagnostic evaluation is not necessary. Anticholinergic therapy is not recommended and is associated with side effects.

53. A 64-year-old man has dysuria, frequency, and hematuria following removal of a urethral catheter after a hip replacement. He is allergic to penicillin. A urine culture at the time of catheter removal grew Enterococcus fecalis. The best treatment is:
A. cephalexin.
B. gentamicin.
C. norfloxacin.
D. clindamycin.
E. nitrofurantoin.
ANSWER=E
Enterococci are the second most common cause of nosocomial UTIs after E. coli. Most urinary infections with these bacteria are catheter related. Enterococcus fecalis is by far the most common species. Enterococci fecalis is often susceptible to a variety of antibiotics but ampicillin, gentamicin, and vancomycin resistant strains pose major therapeutic problems. Most Enterococci are still sensitive to nitrofurantoin. Fluoroquinolones are not reliably effective against this organism.

54. An infant girl has severe upper pole hydronephrosis with associated hydroureter. The renal parenchyma is thinned on ultrasound and the VCUG is normal. Urine can be seen dripping slowly from an ectopic orifice adjacent to the urethral meatus. In this child, the finding most predictive of poor function of the upper pole renal segment is:
A. parenchymal thickness.
B. degree of hydroureter.
C. degree of hydronephrosis.
D. age.
E. location of the orifice.
ANSWER=E
Thin parenchyma on ultrasound, degree of hydroureter, degree of hydronephrosis, and age at diagnosis do not reflect function. The location of the orifice is related to the degree of dysplasia as the more remote the ureteral opening, the higher the degree of renal maldevelopment.

55. A 24-year-old man has a complete T-10 spinal cord transection after a diving accident. Videourodynamics three weeks after the injury will likely show:
A. detrusor areflexia.
B. detrusor hyperreflexia.
C. open bladder neck.
D. absent sphincter activity.
E. striated sphincter dyssynergia.
ANSWER=A
A complete spinal cord injury is usually followed by a period of decreased spinal cord activity at and below the level of the lesion, producing a state of "spinal shock". Both autonomic and somatic activity are suppressed, resulting in detrusor areflexia. The bladder neck is generally closed and competent. Striated sphincter tone is decreased, but usually preserved enough to maintain continence. Urinary retention is generally the rule during this stage.

56. A 20-year-old woman has fever, mild headache, and urinary retention. Neurological examination is normal except for mildly decreased perineal sensation. Pelvic exam shows several painful vesicles on the left side of the rectum and the labia minora. The next step is:
A. spinal MRI scan.
B. cultures and serology for venereal disease.
C. Pap smear.
D. spinal tap.
E. cranial CT scan.
ANSWER=B
Acute genital herpes simplex type II infection is a common cause of acute urinary retention in healthy sexually active young women. Her physical findings are those of acute herpes infection which can be confirmed by culture of the lesions or serology. If she does not improve, then other evaluation may be warranted.

57. During exploration for an appendiceal abscess, the spermatic artery and vein are divided. Survival of the testis is dependent on blood supply from a branch of the:
A. obturator artery.
B. superior vesical artery.
C. inferior vesical artery.
D. posterior scrotal artery.
E. internal pudendal artery.
ANSWER=C
Following ligation of the testicular artery, the blood supply to the testis is from the artery to the vas deferens, a branch of the inferior vesical artery and from the external spermatic artery a branch of the inferior epigastric artery.

58. A 68-year-old woman has urge incontinence that requires three pads per day. She voids every two hours during the day and twice per night. Examination with a full bladder during cough reveals a Grade 2 cystourethrocele and mild stress incontinence. CMG reveals a stable bladder with a capacity of 250 cc. She voids to completion with a maximum flow rate of 26 ml/sec. The next step is:
A. oxybutynin.
B. cystogram.
C. videourodynamics.
D. sling.
E. ambulatory urodynamics.
ANSWER=A
Despite the clinical examination that clearly demonstrates urinary incontinence due to urethral hypermobility, her only complaint is urge incontinence. The failure to diagnose detrusor instability on cystometric examination does not exclude this condition, and from a clinical viewpoint, her main problem is detrusor instability. A normal uroflow essentially excludes urethral obstruction. The most reasonable next step is to treat the instability with oxybutynin. Suburethral sling should not be the first step in the management of women with mild stress incontinence.

59. A 39-year-old woman has dysuria and frequency. Urinalysis shows 30 WBC/hpf and a few cocci. The midstream urine culture shows 103 coagulase negative staphylococci/ml. The next step is:
A. phenazopyridine.
B. repeat midstream culture.
C. urine culture for mycobacteria.
D. antibiotic therapy.
E. catheterized urine culture.
ANSWER=D
The body of the penis is composed of three spongy erectile tissues completely covered by skin. The two cavernous bodies lie on the dorsum of the penis and are surrounded by a double layer of dense fibrous connective tissue named Buck's fascia and the tunica albuginea. They are incompletely separated by a layer of the same tissue, the septum penis, through the major part of the penile body. As the corpora approach the perineum, they diverge from each other

to form the crura. Each crus is firmly adherent to the ramus of the ischia and pubis and is surrounded by the fibers of the ischiocavernosus muscle.

60. The crura of the penis are composed of:
A. suspensory ligaments.
B. erectile tissue.
C. corpus spongiosum.
D. striated muscles.
E. fascia.
ANSWER=B
The body of the penis is composed of three spongy erectile tissues completely covered by skin. The two cavernous bodies lie on the dorsum of the penis and are surrounded by a double layer of dense fibrous connective tissue named Buck's fascia and the tunica albuginea. They are incompletely separated by a layer of the same tissue, the septum penis, through the major part of the penile body. As the corpora approach the perineum, they diverge from each other to form the crura. Each crus is firmly adherent to the ramus of the ischia and pubis and is surrounded by the fibers of the ischiocavernosus muscle.

61. A 70-year-old woman has significant stress urinary incontinence. She underwent a transvaginal needle suspension three years ago and incontinence worsened after surgery. Her physical examination and urinalysis are normal. The abdominal leak point pressure is 38 cm H2O. Fluoroscopy shows no evidence of urethral hypermobility. The next step is:
A. artificial urinary sphincter.
B. suprapubic bladder suspension.
C. collagen injection.
D. transvaginal bladder suspension.
E. biofeedback therapy.
ANSWER=C
The abdominal leak pressure study is consistent with incontinence due to intrinsic sphincter deficiency (ISD). Artificial sphincters are generally not performed in women because of significant morbidity. Suprapubic and vaginal suspensions can correct urethral hypermobility, but are much less likely to cure leakage from ISD. Biofeedback, although useful for detrusor instability and mild stress incontinence, is rarely helpful for intrinsic sphincter deficiency defined by a low abdominal leak point pressure. A pubovaginal sling procedure would also be an appropriate choice in this setting. Collagen is less invasive and has a reasonable chance for success in this patient.

62. A 39-year-old renal transplant patient has right scrotal pain, dysuria, and frequency. Creatinine is 1.0 mg/dl, WBC 8,000, and urine culture shows 80-100,000 CFU/ml of Enterococcus fecalis resistant to gentamicin, cephalosporins, vancomycin, and ciprofloxacin. Optimal outpatient antibiotic therapy is:
A. azithromycin.
B. TMP-SMX.
C. nitrofurantoin.
D. fosfomycin.
E. doxycycline.
ANSWER=E
Vancomycin-resistant enterococcal (VRE) infections has emerged as a major cause of nosocomial infections especially in immunocompromised and neutropenic hospitalized patients. The percentage of VRE isolates from intensive care units increased from 0.4% in 1989 to 23.9% in 1998. VRE isolates are generally susceptible to doxycycline and nitrofurantoin. Nitrofurantoin and fosfomycin have poor tissue (prostate, epididymis) penetration. Most gram positive uropathogens are resistant to TMP-SMX. Azithromycin is usually not effective for VRE. Severe VRE infections may require treatment with parenteral quinupristin/dalfopristin (a streptogramin antibiotic) or oral linezolid (an oxazolidinone).

63. The structure found immediately lateral to the femoral artery as it passes posterior to the inguinal ligament is the:
A. sartorius muscle.
B. femoral vein.
C. femoral nerve.
D. iliohypogastric nerve.
E. lateral femoral cutaneous nerve.
ANSWER=C
The anatomy of the femoral canal from lateral to medial is the femoral nerve, the femoral artery, the femoral vein and lymphatic channels. This is important when drawing blood from the femoral vessels. One should be aware of this relationship when dissecting out the saphenous vein.

64. The most prominent pharmacologic effect of imipramine on the lower urinary tract is:
A. central nervous system excitation.
B. direct smooth muscle inhibition.
C. alpha-adrenergic blockade.
D. blockade of norepinephrine synthesis.
E. opioid antagonism.
ANSWER=B
Imipramine's most prominent effect on the lower urinary tract is direct smooth muscle inhibition. It also has a systemic anticholinergic effect, but this is not as clinically significant in the bladder as its direct relaxant effect. Imipramine also causes blockade of norepinephrine reuptake and this explains its alpha-adrenergic effect on the bladder neck.

65. Five days after intercourse, a 40-year-old man develops a painful necrotic penile ulcer and painful inguinal lymphadenopathy. Gram stain of an exudate from the lesion reveals gram-negative coccobacilli. Dark-field examination and Tzanck smears are negative. The treatment of choice is:
A. penicillin.
B. tetracycline.
C. acyclovir.
D. erythromycin.
E. sulfisoxazole.
ANSWER=D
This patient has chancroid. The drug of choice is erythromycin 500 mg p.o. q.i.d. for seven days or ceftriaxone 250 mg I.M. once. The other antibiotics will not be effective to eliminate the organism which is haemophilus ducreyi. Acyclovir is effective against the herpes virus.

66. The anatomical relationship of the left internal spermatic vein(s) to the left ureter in the retroperitoneum 2 cm above the internal inguinal ring is:
A. anterior and lateral.
B. anterior and medial.
C. posterior and lateral.
D. posterior and medial.
E. medial and adjacent.
ANSWER=A
The left spermatic vein courses from the internal ring to the renal vein. At the internal ring, the vein is anterior and lateral to the ureter which crosses the iliac vessels. The vein crosses anterior to the ureter in its mid-portion and inserts into the left renal vein medial to the upper ureter. In ligating a varicocele, venous ligation may be carried out within the inguinal canal or intra-abdominally, in which case this anatomic relationship is important to know.

67. A 77-year-old woman with frequency, urgency and urge incontinence is able to contract her pelvic muscles appropriately. She has failed to respond to three different anticholinergic medications including one in combination with imipramine. Urinalysis is normal. CMG shows detrusor overactivity. The next step is:
A. biofeedback.
B. pelvic floor rehabilitation with electrical stimulation.
C. transvesical phenol injection.
D. sacral neural modulation.
E. bladder augmentation.
ANSWER=D
In the patient with an overactive bladder who does not achieve satisfactory results with maximum tolerable medical therapy the options are sacral neural modulation, bladder augmentation or diversion. Sacral neural modulation is reversible and therefore the best first step. Patients must be able to accurately fill out a voiding diary prior to the procedure. Pelvic floor rehabilitation does have a role in urge incontinence either alone or in conjunction with medical therapy, but is generally used as the first step in treatment. There is no data to support the use of electrical stimulation in the patient who

can perform the exercises appropriately. Phenol injections intended to denervate the bladder have been abandoned.

68. Two grams of oral ascorbic acid (Vitamin C) per day will:
A. decrease urinary calcium.
B. increase urinary oxalate.
C. decrease urinary magnesium.
D. decrease urinary acidity.
E. decrease urinary citrate.
ANSWER=B
Approximately 10-20% of dietary ascorbate is metabolized into oxalic acid that is then excreted into the urine. Ascorbic acid in doses of 2 grams daily was shown to increase urinary oxalate by 20-30%, but had no effect on urinary pH, citrate, calcium, or magnesium.

69. A ten-year-old girl with a history of bilateral high grade VUR was treated with bilateral cross-trigonal ureteral reimplantation surgery at two years of age. She is evaluated for gross hematuria and found to have nephrogenic adenomas of the bladder that are resected. The next step is:
A. reassurance.
B. antibiotic suppression.
C. intravesical BCG.
D. laser ablation.
E. partial cystectomy.
ANSWER=B
Nephrogenic adenoma is a rare benign metaplastic response of urothelium to tissue injury. Most nephrogenic adenomas occur after an inciting event such as surgery, trauma, infection, or in response to calculi. The adenomas will develop months to years after a precipitating event and will usually occur within the bladder but may occur on any urothelial surface including transposed bladder mucosal grafts. The main presentation is hematuria and irritative voiding symptoms, but they can also present as obstructive symptoms or be found incidentally. The endoscopic appearance is that of a papillary exophytic lesion resembling a low-grade TCC. On histological evaluation, nephrogenic adenoma appear as subepithelial tubular structures similar to Henle's loops. Although at one time these lesions were considered to be premalignant in nature, recent studies have been unable to establish a relationship between nephrogenic adenomas and the subsequent development of malignancy. Even though there is no evidence of malignant potential, transurethral resection is recommended together with long-term antibiotic prophylaxis for at least one year after resection. Prolonged antibiotic therapy is suggested due to the frequent finding of UTI as an associated or causative factor. It is controversial regarding whether patients with nephrogenic adenomas should undergo surveillance cystoscopy. Although there is high incidence of recurrence (30-40%) it is feared that repeated cystoscopic evaluations could further traumatize the bladder urothelium leading to an increased incidence of recurrence. Since nephrogenic adenomas are now known to be a benign condition most authorities recommend cystoscopy, only if recurrent gross hematuria and/or irritative or obstructive voiding symptoms develop.

70. A 52-year-old woman has persistent left sided suprapubic pain six months following a bone anchored cadaveric sling. She is continent. CT scan shows that the left bone anchor is in good position in the pubis while the right anchor is not in bone. Bone scan is negative. The next step is:
A. non-steroidal anti-inflammatory drugs.
B. gabapentin (Neurontin).
C. remove the sling and sling sutures.
D. remove the sling and left bone anchor.
E. remove the sling and both bone anchors.
ANSWER=D
Pain from bone anchors can occur in the absence of sling erosion, bone infection, or inflammation. This is an indication for removal of all synthetic material and bone anchors. Removal of the anchors results in resolution of the pain. Fluoroscopy is often needed to localize the bone anchors and orthopedic instruments may be required. It is not worthwhile to look for anchors that are "floating" in soft tissue since they are difficult to locate and rarely cause symptoms.

71. A 68-year-old diabetic man with symptomatic candiduria is hospitalized for treatment with I.V. amphotericin B. A recent renal ultrasound shows no hydronephrosis. Immediately after starting the amphotericin B, he develops rigors, chills, and fever. The next step is:
A. stop amphotericin B.
B. gentamicin and ampicillin.
C. repeat renal ultrasound.
D. ibuprofen or corticosteroids.
E. add flucytosine.
ANSWER=D
Treatment with amphotericin may cause rigors, chills, and fever at the time of a test dose or during treatment in 50% of patients. Amphotericin B has been shown to stimulate prostaglandin synthesis, which may account for the infusion related reactions. This may be limited or prevented with ibuprofen or steroids. While this patient may need an additional septic evaluation, these symptoms probably relate to an amphotericin side-effect. The amphotericin should not be stopped.

72. A four-year-old 15 kg boy with von Willebrand's disease undergoes nephrectomy after receiving I.V. desmopressin (DDAVP). Postoperative fluids were D5 1/2 NS at 65 cc/hr. He is disoriented one day postoperatively. Urine output over the past eight hours is 90 cc. He is afebrile, pulse is 90, and blood pressure is 90/66. The most likely cause of disorientation is:
A. sepsis.
B. hyponatremia.
C. hypoglycemia.
D. adrenal insufficiency.
E. postoperative hemorrhage.
ANSWER=B
Desmopressin (DDAVP) is used to prevent surgical bleeding in patients with Hemophilia A (Factor VIII deficiency) and mild forms of von Willebrand's disease (Factor XII deficiency). DDAVP corrects bleeding tendencies by causing increased vasoconstriction, elevating levels of Factor VIII and increasing plasminogen activation. Its major function is an antidiuretic effect impairing water resorption by the distal tubules and collecting ducts. In a normal situation, the half life of DDAVP is two hours, however, the high serum levels caused by intravenous DDAVP coupled by the increased stimulation of endogenous antidiuretic hormone (ADH) release from the posterior pituitary by physiologic stress, postoperative pain, and by some anesthetics and analgesics can result in persistently high levels of DDAVP for one to four days after surgery. This may result in the development of symptomatic hyponatremia up to four days postoperatively.

73. A 22-year-old woman has incontinence. There is slight bladder neck hypermobility and a negative cough stress test. Urodynamics show a stable bladder and no demonstrable leakage with Valsalva to 250 cm of H2O with 500 ml in the bladder. During a 24-hour pad test, there is an increase in pad weight of 2 grams. The next step is:
A. repeat pad test ensuring that the patient does her usual activities.
B. retest for stress incontinence at higher volumes.
C. biofeedback.
D. cystoscopy.
E. midurethral synthetic sling.
ANSWER=A
A weight gain of up to 8 grams for a 24-hour pad test is considered normal. If the patient only leaked 2 grams, she either does not have significant stress incontinence or she did not do her usual activities that cause her to have stress incontinence during the pad test. Patients who do not leak during the exam, urodynamics, or during a pad test are unlikely to improve with any of the other treatment options noted.

74. The antimicrobial agent that can be used at the usual dosage in an azotemic patient is:
A. nitrofurantoin.
B. sulfamethoxazole.
C. doxycycline.
D. trimethoprim.
E. fluconazole.
ANSWER=C

All the antibiotics listed including most tetracyclines, except doxycycline, are excreted primarily in the urine and their blood levels increase in the presence of renal insufficiency. Doxycycline is excreted mainly in the feces and does not require consideration for a dosage reduction in an azotemic patient.

75. A 56-year-old man has a prolonged ileus requiring nasogastric suction following radical cystectomy and ileal conduit. On the tenth post-operative day, he has a seizure. The most likely cause of the seizure is reduced:
A. calcium.
B. magnesium.
C. potassium.
D. phosphate.
E. sodium.
ANSWER=B
Magnesium depletion occurs with diuretic use, diabetic ketoacidosis, alcoholism and prolonged nasogastric suction. The latter is associated with hyperchloremic metabolic acidosis. For reasons that are not clear, this eventually results in hypocalcemia and hypomagnesemia. When hypokalemia is associated with hypomagnesemia, potassium replacement cannot be accomplished until magnesium is replenished. Hypomagnesemia is one of the chief causes of inability to replenish body stores of potassium associated with prolonged nasogastric suction. If not corrected, the first clinical appearance of hypomagnesemia will lead to an alteration in mental status and seizures.

76. An asymptomatic, 65 kg man with a serum creatinine of 2.0 mg/dl is evaluated for recurrent renal calculi. A 24-hour urinary creatinine measurement is 0.5 gm. This finding is most consistent with:
A. an incomplete collection.
B. low protein diet.
C. hydrochlorothiazide therapy.
D. resolving renal insufficiency.
E. unilateral obstruction.
ANSWER=A
As long as renal function is at a steady state, 24 hour excretion of creatinine should be approximately 1 gm per day in a patient of this size. A specimen with only 0.5 gm of creatinine in a patient with chronic but stable renal insufficiency suggests an incomplete timed collection.

77. A 25-year-old man with clinical stage 110 NSGCT had a left scrotal orchiectomy before full-dose platinum-based chemotherapy. After the chemotherapy, he has a residual 3 cm para-aortic mass. In addition to a RPLND, treatment should include:
A. wide excision of the scrotal scar.
B. wide excision of the scrotal scar and removal of the spermatic cord remnant.
C. removal of the spermatic cord remnant.
D. hemiscrotectomy and removal of spermatic cord remnant.
E. hemiscrotectomy, removal of the spermatic cord remnant and ipsilateral
ilioinguinal node dissection.
ANSWER=C
Suboptimal approaches to testicular neoplasms including scrotal orchiectomy, transscrotal biopsy or fine needle aspiration occurs in 4% to 17% of cases. Patients treated with full-dose platinum based chemotherapy should have the spermatic cord stump removed at the time of RPLND, however, given the relative absence of local relapse after systemic treatment, extensive groin dissection or hemiscrotectomy is not required. In patients with low-stage NSGCT (not receiving systemic chemotherapy), the scrotal scar should be widely excised with the spermatic cord remnant at the time of RPLND. Patients with clinical stage I NSGCT's and scrotal violation have been excluded in series evaluating surveillance.

78. A one-month-old boy undergoes left radical orchiectomy for an endodermal sinus (yolk sac) tumor. Chest and abdominal CT scans are normal. Preoperative AFP is 2600 ng/dl, and postoperative levels at one and two months are 330 and 90 ng/dl (normal <
10 ng/dl). The next step is:
A. bone scan.
B. ultrasound of right testis.
C. multiagent chemotherapy.
D. RPLND.
E. repeat AFP in one month.
ANSWER=E
The half life of AFP is approximately five days. Hence, the fall in AFP in this patient would not be normal if the only source of AFP were the tumor that was totally excised. On the other hand, the progressive drop suggests there are no metastases. Fetuses and neonates also produce AFP and the values cited are normal in infants, in whom AFP is elevated above normal values (< 10 ng/dl) until eighteen months of life.

79. The drug that can result in an elevation of BUN without affecting glomerular filtration rate is:
A. tetracycline.
B. erythromycin.
C. methicillin.
D. cephalexin.
E. furosemide.
ANSWER=A
The anti-anabolic activity of tetracycline can cause a rise in BUN. For patients with normal renal function this is not a problem, but patients with markedly reduced renal function can suffer toxic side effects due to the retained urea and phosphate. Therefore, tetracycline should not be utilized in patients with a significantly elevated BUN.

80. A 25-year-old man has right testicular pain. Physical examination is normal. Testicular ultrasound reveals bilateral diffuse hyperechoic 1 to 2 mm foci. The best management is:
A. testicular biopsy.
B. right radical orchiectomy.
C. chromosomal analysis.
D. surveillance.
E. bilateral low-dose testicular radiation.
ANSWER=D
Testicular microlithiasis (TM) or polytopic intratubular calcifications is usually an incidental finding during investigation of unrelated testicular symptoms by scrotal sonography. TM is more frequent in undescended testes. TM has been found in infertile men. TM is most commonly associated with nonseminomatous germ cell tumors. The association between TM and testicular CIS has been well-documented. High frequency transducers (7.5 or 10 MHz) are necessary to visualize small hyperechoic foci. Acoustic shadowing is not seen, probably because of the small size of the calcifications. The classic description of TM is bilateral, evenly distributed bright echoes. Studies of Army recruits suggest that the prevalence of TM may be as high as 7% in normal men. Testicular biopsy is not recommended. Chromosomal analysis is only performed if clinically indicated (azoospermia or body habitus suggestive of Klinefelter's syndrome).

81. A ten-month-old girl undergoes left nephrectomy for Wilms' tumor. The right kidney is normal at the time of surgery. Pathology reveals the presence of perilobar nephrogenic rests. She is at increased risk for:
A. nephrotic syndrome.
B. renal failure.
C. metachronous Wilms' tumor.
D. local recurrence.
E. metastatic disease.
ANSWER=C
Approximately 1% of children with unilateral Wilms' tumor develop contralateral disease. Children younger then 12 months diagnosed with Wilms' tumor who also have nephrogenic rests, in particular perilobar nephrogenic rests, have a markedly increased risk of developing contralateral disease. These children require frequent and regular surveillance for several years.

82. The clearance of low molecular weight heparin (enoxaparin) is markedly reduced in patients with:
A. renal insufficiency.
B. hypoalbuminemia.
C. jaundice.
D. viral hepatitis.
E. bowel obstruction.

ANSWER=A
Renal excretion is a significant mechanism for the elimination of enoxaparin. Patients with a creatinine clearance of less than 30 ml/min have an area under the curve (AUC) twice the normal population. Since the PTT is not affected by enoxaparin, this drug must be used with extreme caution in patients with renal impairment. Anticoagulant activity of enoxaparin can be monitored by measuring factor Xa inhibition.

83. A 65-year-old man is treated with goserelin acetate and bicalutamide for a rising serum PSA following definitive radiation therapy for Gleason 8 prostate cancer. Bone scan and CT scan are negative. In addition to the hormone therapy, he should have annual bone density scans and:
A. observation.
B. monthly zoledronate (Zometa).
C. weekly alendronate (Fosamax).
D. calcium and Vitamin D supplements.
E. medroxyprogesterone (Megace).
ANSWER=D
Osteoporosis is a recognized risk of long-term androgen ablation and has been shown to have significant clinical impact. Men started on LHRH agonists should receive annual bone density scans and regular calcium and vitamin D supplements. Treatment of osteoporosis if it develops may be done with bisphosphonates, but the ideal type of therapy is not proven. Prophylactic monthly zoledronate (Zometa) has been shown to prevent bone-related events only in men with documented bony metastases. It is also very costly. Less frequent zoledronate administration is currently under study.

84. Two physiologic factors contributing to post-obstructive diuresis are a renal concentrating defect and:
A. resistance to atrial natriuretic factor.
B. secretion of ADH.
C. increased chloride reabsorption.
D. increased sodium reabsorption.
E. osmotic diuresis.
ANSWER=E
The most common cause of post-obstructive diuresis is the physiologic elimination of water, sodium, and urea. The latter can promote an osmotic diuresis. A persistent diuresis may occur as consequence of a renal concentrating defect. The latter is thought to be due to a disturbance of the aquaporin channels in the collecting duct. Atrial natriuretic factor levels are typically increased, but resistance to this peptide is not present.

85. An 81-year-old woman with nocturnal enuresis is treated with desmopressin. After three nights of treatment she is lethargic and hyponatremic. The next step is:
A. reduce the dose of desmopressin.
B. stop desmopressin.
C. increase dietary sodium.
D. limit fluid intake at night.
E. start hydrochlorothiazide.
ANSWER=B
The most serious side effect of desmopressin is water intoxication resulting in hyponatremic seizures. The mechanism of the hyponatremia is related to a large fluid intake at night. It is recommended that patients do not take more than 8 ounces of fluid on any night that desmopressin is administered. However, desmopressin has not been found to be effective for geriatric incontinence and given the high prevalence of contraindications and the expense, experts recommend that that use of desmopressin in the elderly await further studies.

86. A 26-year-man undergoes orchiectomy for seminoma. Abdominal CT scan and tumor markers are negative. He elects surveillance. The most accurate statement regarding his outcome over the next two years is:
A. 5% risk of visceral relapse.
B. similar to patients treated with radiation therapy.
C. 40% risk of relapse with non-seminomatous elements.
D. 15% risk of retroperitoneal relapse.
E. 50% risk of pulmonary relapse.
ANSWER=D
There are proponents of surveillance for patients with testicular seminoma because of potential secondary malignancy after radiation (especially leukemia, lymphoma). In a patient with clinical Stage I disease (negative CT scan and negative tumor markers), surveillance may be a reasonable option. However, there remains an approximately 15% risk of retroperitoneal lymph node relapse. This risk can be completely eliminated by the administration of retroperitoneal radiation therapy. Because of the low dosage of radiation therapy administered, the morbidity of this treatment is limited and, for that reason, most urologists and oncologists still recommend irradiation for clinical Stage I disease. The risk of pulmonary relapse is relatively low, and it would be uncommon for such a patient to relapse with nonseminomatous elements.

87. The agent that produces a diuresis by inhibiting the release of vasopressin (ADH) from the central nervous system is:
A. hydrochlorothiazide.
B. lithium.
C. methoxyflurane.
D. furosemide.
E. alcohol.
ANSWER=E
Lithium inhibits vasopressin action in the collecting duct. Complications of lithium carbonate treatment also include interstitial nephropathy. Amiloride can reduce lithium-induced polyuria. Diuretics often stimulate vasopressin release by their volume depletion. Alcohol is a potent inhibitor of ADH release with a consistent dose response relationship.

88. Alpha-1-blockers relax prostatic smooth muscle and:
A. relax the distal urethral sphincter.
B. induce prostate apoptosis.
C. decrease prostate size.
D. improve bladder contractility.
E. decrease prostate cell proliferation.
ANSWER=B
The best characterized mechanism by which alpha-1-blockers rapidly reduce symptoms of BPH is by blocking sympathetic adrenergic regulation of proximal urethral and prostatic smooth muscle tone. Another mechanism mediating the effect is the induction of prostate apoptosis. Alpha-1-blockers have no effect on the distal urethral sphincter or prostatic cell proliferation.

89. A 28-year-old man undergoes a right radical orchiectomy for pure seminoma. The serum AFP and hCG are normal, and an abdominal CT scan reveals a 4 cm mass in the interaortocaval region. Chest CT scan reveals three nodules at the base of the right lung. The best management is:
A. needle biopsy of pulmonary nodules.
B. radiation to the retroperitoneum and chest.
C. RPLND followed by chemotherapy.
D. RPLND and chest radiation.
E. chemotherapy.
ANSWER=E
Patients with Stage III seminomatous tumor should receive cis-platinum based chemotherapy. Radiation therapy should not be utilized as the initial treatment in patients with Stage III seminomas, as the radiation therapy may diminish bone marrow reserves and preclude effective chemotherapy. The options of radiation therapy or resection remain open for residual masses following combination chemotherapy.

90. A 30 kg girl with renal failure and nephrotic syndrome undergoes pre-transplant bilateral nephrectomies. Her initial post-operative fluid management should be:
A. D51/4NSat25cc/hr.
B. D51/4NSat100cc/hr.
C. D5 1/2 NS with 40mEq/l KCL at 70 cc/hr.
D. D5W with one amp NaHC03 /l at 100 cc/hr.
E. D5W at TKO (to keep open).
ANSWER=A
Following a bilateral nephrectomy, fluid management should center on replacement of insensible loss from the lungs and skin. This accounts for approximately one-third of maintenance requirements. Additional replacement may be required to keep up with third spacing and should be replaced as a slow NS slow bolus. Additional free water and salt replacement will not be cleared and can result in the need for dialysis.

91. Aldosterone production is primarily:
A. a function of the zona fasciculata.
B. increased by atrial natriuretic factor.
C. decreased in renal hypoperfusion.
D. mediated by angiotensin II.
E. increased with sodium loading.
ANSWER=D
The synthesis of aldosterone is increased by either increased angiotensin II or elevated serum potassium. Increased sodium decreases aldosterone. Aldosterone is produced in the zona glomerulosa and not under direct control of ACTH.

92. A 22-year-old man with congenital adrenal hyperplasia has bilateral testicular masses. The next step is:
A. serum ACTH and **Cortisol.**
B. serum LH and testosterone.
C. pituitary MRI scan.
D. percutaneous testis biopsy.
E. bilateral excisional biopsies.
ANSWER=A
The association of bilateral testis tumors with congenital adrenal hyperplasia (CAH) and the remission of both endocrine manifestations and tumors after appropriate glucorticoid treatment call attention to these unusual and sometimes misdiagnosed lesions. Whether they represent neoplasms or hyperplasia and whether they derive from normal adrenal rests or interstitial cells remain uncertain. Nevertheless, these lesions are primarily dependent on ACTH for growth and steroid secretion. The most likely explanation is that they arise from the adrenocortical rests that may occur normally in the testis but that are abnormally stimulated in inadequately controlled CAH. Recognition of CAH and its association with bilateral testicular "tumors" coupled with appropriate medical treatment may obviate unnecessary surgical treatment.

93. Nephrocalcinosis and/or renal calculi that occur in pre-term infants on diuretics:
A. is usually unrelated to hypercalciuria.
B. usually leads to chronic renal failure.
C. is often associated with aminoaciduria.
D. may completely disappear.
E. usually accompanies obstructive uropathy.
ANSWER=D
Renal calcification in the newborn usually occurs in preterm babies with hyaline membrane disease who require furosemide for diuresis; this produces hypercalciuria as a side effect. Renal function is generally normal or minimally reduced. Discontinuing furosemide therapy, by reducing calcium excretion, may actually cause these concretions to dissolve completely.

94. Calcium reabsorption in the kidney is stimulated by:
A. acidosis.
B. intravascular volume expansion.
C. parathyroid hormone.
D. phosphate depletion.
E. furosemide administration.
ANSWER=C
Parathyroid hormone (PTH) directly stimulates calcium reabsorption by the kidney. Approximately 65% of filtered calcium is reabsorbed in the proximal convoluted tubule; less than 10% is reabsorbed in the distal tubule. In the presence of acidosis, calcium binding to albumin and inorganic anions decreases, resulting in a net increase in calcium excretion. Calcium reabsorption is linked to sodium reabsorption and hence is increased in the presence of decreased extracellular fluid volume. Phosphate depletion decreases calcium reabsorption. Furosemide is a loop diuretic that inhibits calcium absorption.

95. The treatment of choice for symptomatic multifocal hemangiomas of the bladder is:
A. external radiation.
B. alum instillation.
C. simple cystectomy.
D. TUR and figuration.
E. KTP laser.
ANSWER=E
The hemostatic effect of YAG, argon, or KTP lasers make them extremely effective for the treatment of bladder hemangiomas. In the setting of multifocal lesions, it would be the treatment of choice. Intravesical alum has been used for hemorrhagic cystitis but will not ablate hemangiomas. Simple cystectomy could be considered for life-threatening bleeding. Radiation has no proven efficacy in this setting.

96. A nine-year-old boy has microscopic hematuria after a bicycle accident. VCUG is normal except for spina bifida occulta. Renal ultrasound and voiding pattern are normal. The next step is:
A. neurologic consultation.
B. MRI scan of the lower spine.
C. urodynamic evaluation.
D. reassurance.
E. EMG testing.
ANSWER=D
Spina bifida occulta is found incidentally on approximately 10% of films imaging the lower spine. In a patient without continuous voiding complaints who has a normal bladder that empties to completion, spina bifida occulta is an x-ray finding without clinical significance. Further evaluation is unnecessary. This entity should be differentiated from occult spinal dysraphism. Occult spinal dysraphism is a term applied to the diagnosis of a tethered cord secondary due to either a tight filum terminale, diastematomyelia, lipomeningocele or dermal sinus tract. Abnormal sacral cutaneous findings occur in 90% of patients and abnormal lumbosacral bony abnormalities are present in 99% of patients with occult spinal dysraphism.

97. Bilateral orchiectomy most consistently alters:
A. libido.
B. erection.
C. ejaculation.
D. serum prolactin.
E. seminal emission.
ANSWER=A
Serum testosterone concentration is most related to sexual interest or libido rather than to erection, emission, or ejaculation. A surprising number of individuals who have had a bilateral orchiectomy retain the ability to have erection. Bilateral orchiectomy does not cause a significant change in serum prolactin.

98. A 45-year-old man with recurrent Ta Grade II tumors undergoes resection of multifocal recurrences. A single postresection dose of an intravesical agent will be administered. In the immediate post-operative period, the agent of choice is:
A. mitomycin C.
B. alpha-interferon.
C. BCG.
D. gemcitabine.
E. keyhole limpet hemocyanin.
ANSWER=A
The effectiveness of intravesical mitomycin-C as prophylaxis to decrease recurrences has been studied in a multitude of randomized studies. The majority of studies confirm the short-term benefit of mitomycin-C in reducing recurrences following resection by 40%. As with other agents, the efficacy decreased as follow-up increases. A Medical Research Council trial, which included 447 patients with superficial bladder cancer, was performed to evaluate the effects of a single postresection dose or multiple post-resection doses of mitomycin-C. After a median follow-up of seven years, a 20% sustained decrease in recurrence rate was noted in the mitomycin-C treated group over control. However, no significant difference was observed between patients who received a single post-resection dose of mitomycin-C and those who received multiple doses. A combined analysis of six randomized studies with mitomycin-C noted an overall 9% benefit in recurrences, with only two studies demonstrating a significant reduction. Systemic complications of intravesical mitomycin-C are uncommon and related to its larger molecular weight, which leads to poor absorption. Most complications associated with mitomycin-C are local in nature and consist of irritative symptoms related to the development of chemical cystitis. None of the other agents listed have been shown to be efficacious in the immediate postresection period. BCG is absolutely contraindicated in the postresection period due to the risk of absorption and sepsis, and keyhole limpet hemocyanin may have a similar intense inflammatory reaction in the early post-operative

period. Other chemotherapy agents such as thiotepa and epirubicin have also been studied with efficacy similar to that of mitomycin-C in the immediate postresection period. Gemcitabine is under investigation in this setting.

99. A three-year-old girl has normal external genitalia and an absent vagina. Her chromosomes are 46 XY. The most common associated finding is:
A. unilateral gonadal agenesis.
B. tethered spinal cord.
C. unilateral renal agenesis.
D. inguinal hernia.
E. VUR.
ANSWER=D
This condition is complete androgen insensitivity syndrome (CAIS), previously described as testicular feminization. The incidence ranges between 1 in 20,000 to 64,000. Patients have normal female external genitalia but an absent vagina. An inguinal hernia is found in 50% of the patients with CAIS and it is reported that 2-5% of all inguinal hernias in prepubertal girls are associated with this disorder. Classically patients with CAIS come to attention due to either a testis found in the inguinal hernia sac at the time of inguinal herniorrhaphy or with complaints of primary amenorrhea. If a testicle is incidentally found in a hernia sac, it should be biopsied and placed back in the abdomen. A complete workup for a intersex disorder is then performed. If CAIS is confirmed, a delayed bilateral orchiectomy should be performed due to the high risk of testicular malignancy.

100. Bladder relaxation during filling is accomplished by:
A. stimulation of beta-3 adrenergic receptors via the hypogastric nerve.
B. stimulation of alpha-1 d receptors via the hypogastric nerve.
C. stimulation of alpha-1 a receptors via the hypogastric nerve.
D. inhibition of sympathetic input from the spinal cord.
E. inhibition of nicotinic receptors via the pelvic nerve.
ANSWER=A
The accommodation of the bladder to increasing volumes of urine is primarily a passive phenomenon dependent on the intrinsic properties of the vesical smooth muscle and the quiescence of the parasympathetic efferent pathway. Stimulation of beta-2 and beta-3 adrenergic receptors in the detrusor muscle results in the direct relaxation of the detrusor smooth muscle.

101. Compared with urinary cytology, urine fluorescence in-situ hybridization (FISH) testing provides:
A. rapid point-of-service testing.
B. improved sensitivity.
C. improved specificity.
D. decreased cost.
E. detection of tumor mucin antigens.
ANSWER=B
Fluorescence in-situ hybridization (FISH) is a hybridization technique with fluorescent labeled DNA probes to detect cells with the most relevant chromosomal abnormalities involved in the pathogenesis of bladder cancer. It is a complex test done in the laboratory that requires a well-controlled technique to insure accurate test interpretation in clinical practice. It has been clearly shown to be more sensitive than urinary cytology but is more costly. Another cellular staining technique for bladder tumor detection, the Immunocyte test, uses three monoclonal antibodies to detect mucin antigens and a high molecular weight form of CEA expressed in the cytoplasm of bladder cancer cells.

102. A 10-year-old boy with a neurogenic bladder managed with CIC has normal upper urinary tracts. He has had asymptomatic bacteriuria on multiple occasions. Starting prophylactic antibiotics will likely:
A. result in resistant organisms.
B. have no effect on urinary bacteria.
C. significantly decrease the frequency of bacteriuria.
D. lead to fewer symptomatic infections.
E. decrease the risk of stone formation.
ANSWER=A
Although prophylactic antibiotics may decrease, but not eliminate, bacteruria in the short term, the actual benefit of such antibiotic use is unproven. A study of 15 children on nitrofurantoin prophylaxis demonstrated a small decrease in bacteriuria (74 percent placebo vs. 65 percent treated); however, the organism responsible for bacteriuria shifted to resistant organisms such as Klebsiella and Pseudomonas.

103. The receptor afferent fibers that account for nociception in response to neuropathic and possibly inflammatory bladder conditions are termed:
A. A-delta myelinated "volume".
B. A-delta myelinated "tension".
C. A-delta myelinated "silent".
D. C-unmyelinated "volume".
E. C-unmyelinated "silent".
ANSWER=E
Recruitment of C fiber (unmyelinated "silent" axons) occurs in the context of various painful bladder conditions as well as in response to intravesical administration of such substances as high potassium, low pH, high osmolality solutions and irritants such as capsaicin. These fibers are normally mechanoin sensitive, but may become nociceptive as a new functional afferent pathway from conditions or exposures that lead to their sensitization. Under normal conditions, A-delta fibers (finely myelinated axons) discharge in response to bladder fullness, and C fiber volume sensors respond to stretch.

104. A 67-year-old man with a history of six weekly BCG treatments undergoes 4 cycles of MVAC for a muscle invasive TCC (T3bNXMO) at the bladder neck. Following chemotherapy, there is no visible tumor although the urine cytology is positive. The next step is:
A. cystoscopy in three months.
B. repeat six weeks of BCG.
C. maintenance BCG.
D. radiation therapy.
E. radical cystoprostatectomy.
ANSWER=E
Among patients with invasive bladder cancer, MVAC chemotherapy will result in a complete pathologic response in 20% of patients prior to cystectomy. However, between 20-30% of patients with a clinical response will harbor residual invasive disease at the time of cystectomy. Accordingly, following chemotherapy this patient should undergo a cystoprostatectomy. There is no role for additional intravesical therapy in this patient. In addition, it would be inappropriate to place him on a surveillance protocol.

105. Sacral agenesis in the neonate is most closely associated with which maternal factor:
A. advanced age.
B. sacral agenesis.
C. insulin dependence.
D. folic acid deficiency.
E. first trimester use of contraceptive pills.
ANSWER=C
Sixteen percent of children with sacral agenesis have a diabetic mother, and it is estimated that the risk of an insulin-dependent mother having a child with sacral agenesis is 1%. Experimental work implicates insulin-like growth factor antibodies as an important factor in sacral agenesis. Folic acid deficiency is associated with neural tube defects.

106. A 55-year-old obese man undergoes a prolonged radical nephrectomy via a flank approach. He received two units of PRBC intraoperatively. He has 100 ml of brownish urine during the first three hours after surgery. Vital signs and serum troponin are normal. Serum potassium is 6.5mEq/l and the CPK is twice normal. Dipstick urinalysis is strongly positive for blood and the microscopic analysis reveals 1 RBC and 2 WBC/hpf. The oliguria is due to:
A. myoglobin nephrotoxicity.
B. myocardial infarction.
C. transfusion reaction.
D. sepsis.
E. interstitial nephritis.
ANSWER=A
In urologic patients, prolonged surgery in the exaggerated lithotomy or the flank position has been associated with rhabdomyolysis and acute renal failure. A high serum creatinine phosphokinase (CPK) establishes the diagnosis when there is a discrepancy between the

dipstick hemoglobin and microscopic appearance of RBC on urinalysis. Myoglobin in the urine results in a positive dipstick for blood.

107. A 67-year-old man has left flank pain three weeks following radical cystectomy and orthotopic neobladder. His ureteral stents were removed one week after surgery. His urethral catheter remains in place. A CT scan demonstrates left hydronephrosis to the level of the neobladder. The next step is:
A. observation.
B. cystoscopy and retrograde ureteral stent.
C. nephrostomy tube and antegrade ureteral stent.
D. endoscopic incision of ureterointestinal anastomosis.
E. open revision of ureterointestinal anastomosis.
ANSWER=C
This patient has symptomatic left hydronephrosis three weeks following cystectomy and urinary diversion. The obstruction is at the level of the ureterointestinal anastomosis. In the early post-op period, it is usually related to edema. In this setting, placement of antegrade ureteral catheter will allow for internalization of the renal drainage with a high rate of success. In the event that stenting alone is not sufficient, an endoscopic balloon dilation or incision would be facilitated by placement of the initial ureteral stent for four to six weeks. Given the patient's symptoms, observation alone will not improve the situation and symptoms are likely to worsen. Cystoscopy risks damaging the urethral anastomosis and will likely not allow for identification of the ureteral orifices thus preventing stent placement from below. Because the most likely cause is edema in this early setting, more aggressive procedures such as endoscopic incision or open revision are not recommended.

108. Antenatally discovered VUR differs from VUR discovered in older symptomatic children, because in antenatal VUR:
A. grades I - IV show mid-kidney scars.
B. function of the refluxing kidney is diminished.
C. severe damage is mostly in males.
D. kidney damage is usually left sided.
E. resolution rates are slower.
ANSWER=C
Antenatally discovered VUR seems to be different from VUR discovered in a symptomatic older child. It is most commonly seen in males and is associated with high pressure voiding due to increased urethral resistance that resolves with time. Severe renal damage is more often seen in males with grade V VUR. The majority of kidneys with grades I - IV VUR show normal function and morphology. When renal damage occurs it is usually a global reduction of renal parenchyma. Resolution rates in antenatally discovered VUR are the same and possibly slightly better than that discovered in older symptomatic children.

109. A 60-year-old man has renal insufficiency due to atherosclerotic renal artery disease. The most important prognostic factor for successful renal revascularization to preserve renal function is:
A. duration of hypertension.
B. proportion of sclerotic glomeruli on renal biopsy.
C. serum creatinine.
D. presence of collateral blood supply on angiography.
E. presence of renal artery occlusion.
ANSWER=C
Revascularization to preserve renal function in patients with atherosclerotic renal artery stenosis will most likely benefit those who have not yet sustained permanent global impairment of renal function. Complete occlusion of the renal artery does not necessarily preclude intervention, since renal viability may be maintained through the presence of collateral arterial supply. The Cleveland Clinic group has found that 89% of such patients with initial serum creatinine < 3.0 mg/dl could be expected to have stable or improved renal function after revascularization. However, renal biopsy to evaluate the severity of renal parenchymal involvement as a guide to revascularization was found to be helpful only if the initial serum creatinine exceeded 4.0 mg/dl. In addition to the absolute level of renal function, the rate of decline of renal function is an important determinant of outcome after intervention. Duration of hypertension does not predict recoverability in this setting.

110. Orthotopic neobladder reconstruction should not be performed in a woman undergoing anterior exenteration for bladder cancer in the setting of:
A. age older than 75.
B. positive pelvic lymph nodes.
C. recurrent UTIs.
D. bilateral hydroureteronephrosis.
E. tumor invasion of the anterior vaginal wall.
ANSWER=E
Continent neobladder reconstruction has been performed in women with bladder cancer and requires dividing the urethra just distal to the bladder neck. Tumor invasion at the bladder neck or directly into the anterior vaginal wall is a predictor of urethral tumor, and thus a contraindication for the procedure. Older women have a higher risk of incontinence, but age alone is not a contraindication. Many series in men have shown that continent diversion is still acceptable in the face of positive lymph nodes. UTI and hydronephrosis have no implication for selection for type of diversion.

111. A six-year-old boy has persistent asymptomatic microhematuria. Urine calcium/creatinine ratio, serum creatinine, ASO, and C3 complement are normal. Renal and bladder ultrasound is normal. The next step is:
A. VCUG.
B. cystoscopy.
C. non-contrast CT scan.
D. urinalysis and blood pressure measurement in one year.
E. urine cytology.
ANSWER=D
Microscopic asymptomatic hematuria is a common problem of childhood. Further imaging is most likely to be nonproductive and at this point a repeat evaluation with urine analysis in one year and blood pressure measurement is the best advice.

112. A 19-year-old man sustained a gunshot wound to the abdomen from a high velocity military rifle. During exploration, a right ureteral laceration was identified 4.5 cm above the ureterovesical junction. The most appropriate repair of this injury is:
A. transureteroureterostomy.
B. ureteroureterostomy with spatulated anastomosis.
C. psoas hitch and ureteral reimplantation.
D. primary repair of the ureteral laceration with ureteral stent.
E. nephrostomy tube placement with delayed ileal ureter.
ANSWER=C
High velocity injury to a portion of the urinary tract is frequently associated with laceration and a blast effect that produces significant loss of much of the tissue surrounding the missile tract. Widespread debridement must be carried out. Immediate reconstruction is appropriate with reimplantation into the bladder since this will provide adequate ureteral drainage and a tension-free anastomosis. While placement of nephrostomy tube and delayed reconstruction is an option, this is not the best treatment for this patient.

113. A 51-year-old man has an orthotopic ileal neobladder following a cystectomy for muscle invasive TCC. Eighteen months later, urine cytology is positive and biopsy of the urethral anastomosis reveals focal CIS. Biopsies of the distal urethra are negative. IVP is normal. The next step is:
A. BCG.
B. fulguration of membranous urethra.
C. radiation.
D. excise proximal urethra, reanastomosis.
E. urethrectomy and cutaneous diversion.
ANSWER=A
Urethral recurrence following orthotopic neobladders is rare, generally less than 5% due to careful screening of the prostatic urethra prior to diversion. Successful management of superficial recurrences, especially CIS with BCG have been reported. Urethrectomy is reserved for invasive or BCG refractory lesions.

114. A one-week-old boy with prenatally diagnosed left hydronephrosis underwent a sonogram that showed moderate left hydronephrosis. The VCUG was normal. A MAG-3 diuretic renal scan should not be performed now since:
A. administration of radionuclide can be hazardous.
B. renal vascular resistance is diminished.

C. venous access is difficult.
D. restricted oral intake is not tolerated.
E. GFR is lower in the first week of life.
ANSWER=E
MAG-3 is an excellent isotope for cortical imaging and assessing urinary tract obstruction. Its excretion is dependent on GFR. GFR rapidly changes with normal growth and increases several fold during the first two months of life. Therefore, the optimal timing of the renal scan is during the second month of life.

115. Urinary tract obstruction most likely to be associated with renin-dependent hypertension is:
A. intermittent.
B. acute unilateral.
C. acute bilateral.
D. chronic unilateral.
E. chronic bilateral.
ANSWER=B
The only form of urinary tract obstruction that may cause renin-mediated hypertension is acute unilateral ureteral obstruction. Chronic bilateral ureteral obstruction may also cause hypertension, but it is volume related and not associated with hyperreninemia. To establish that obstruction is causing renin-mediated hypertension, divided renal vein renins should show lateralization to the obstructed kidney with suppression of renin output from the normal kidney. A peripheral plasma renin level, even when indexed against the 24-hour urinary sodium, is not a good screening test.

116. When using a colon segment instead of ileum for urinary diversion:
A. bowel obstruction is more common.
B. electrolyte abnormalities are more common.
C. it is more difficult to reach the urethral stump for orthotopic reconstruction.
D. an antirefluxing anastomosis with tunneling is more difficult.
E. nutritional problems are less frequent.
ANSWER=E
In general, when comparing the use of colon and ileum for urinary diversion, there are few differences that would favor one over the other except in special circumstances. One of the most common special circumstances is the setting of prior pelvic radiation therapy. In this instance, the use of colon is often favored as it is usually out of the radiated field. Probably because of its larger diameter, the incidence of postoperative bowel obstruction with colon is less than that for ileum. Construction of an antirefluxing anastomosis with a submucosal technique is easier with colon segments. Colon segments can usually reliably be mobilized to reach anywhere in the abdomen or pelvis. Although the same electrolyte abnormalities are possible with either segment, nutritional problems are less with colon when compared to ileum as long as the ileocecal valve is left intact.

117. The most important predisposing factor for candidemia in newborns is:
A. I.V. catheters.
B. steroid administration.
C. blood dyscrasia.
D. antibiotic therapy.
E. immunosuppressive therapy.
ANSWER=D
Antibiotic therapy, particularly for gram-negative bacteremia, is the most important predisposing factor for developing candidemia. Other factors such as steroids, catheters, and immunosuppression from drugs or disease do enhance the chances of fungal infection while on antibiotic therapy.

118. A 26-year-old man has progressive left flank pain 17 years after an open pyeloplasty. Diuretic renography reveals 28% function from his left kidney with delayed renal pelvic drainage (T ^ = 40 minutes). Retrograde ureterogram shows a 1 cm narrowing at the UPJ. The best treatment is:
A. balloon dilation.
B. endopyelotomy.
C. nephrectomy.
D. open pyeloplasty.
E. ureterocalycostomy.
ANSWER=B
Open pyeloplasty may result in early or delayed failure. Failure is most likely secondary to an anastomotic stricture. Open pyeloplasty should eliminate the need to exclude an obstructive aberrant renal vessel and as such renal angiography is unnecessary. Ureterocalycostomy might be considered, but only after less invasive treatments. Nephrectomy should be reserved for kidneys with minimal renal function. Balloon dilation is suboptimal therapy. Transmural endopyelotomy whether performed in a retrograde or antegrade approach is the treatment of choice.

119. A 62-year-old man develops bilateral hydronephrosis four years after radical cystectomy and ileal conduit for bladder cancer. Upon catheterizing the stoma, 100 cc of urine is obtained. The most likely cause of the hydronephrosis is:
A. stomal stenosis.
B. chronic ureteral reflux.
C. ureteral obstruction due to recurrent cancer.
D. ureteral obstruction due to fibrosis.
E. antiperistaltic orientation of conduit.
ANSWER=A
Stomal stenosis is one of the most common long-term complications of ileal conduit diversion. Outlet stenosis leads to increased residual urine and high pressure in the conduit that is transmitted across refluxing ureters to the upper tracts resulting in hydronephrosis and upper tract deterioration. Neither recurrent cancer nor simple postoperative fibrosis are likely to appear suddenly four years after surgery. Chronically ischemic conduits have small volumes and would not retain a residual of 100 cc of urine.

120. An eight-month-old child hospitalized for pyelonephritis has an oral temperature of 39°C. The child weighs 8 kg. The appropriate acetaminophen dosage to manage the fever is:
A. 40 mg.
B. 80 mg.
C. 120 mg.
D. 160 mg.
E. 200 mg.
ANSWER=B
The dose for acetaminophen is 10 mg/kg. Therefore, the appropriate dose for this 8 kg child is 80 mg. The infant acetaminophen drops are supplied in 80 mg/0.8 ml. For children age four to eleven months, the recommended dose is 0.8 ml. Overdosage of acetaminophen can cause life threatening hepatic toxicity. In children, an overdosage of less than 150 mg/kg has not been associated with hepatic toxicity.

121. A 42-year-old woman undergoes left ureteroscopy for evaluation of unilateral gross hematuria. The procedure is uneventful, no source of hematuria is seen and no ureteral stent is placed. She received perioperative antibiotics. Twelve hours later, she has left flank pain and a temperature of 99° F. An ultrasound shows moderate hydronephrosis. The ureter is not visualized. The next step is:
A. analgesics.
B. hydration and diuretics.
C. IVP.
D. ureteral stent.
E. percutaneous nephrostomy.
ANSWER=A
This patient most likely has mild renal obstruction secondary to ureteral edema from the uncomplicated ureteroscopy. There is no suggestion of sepsis. An initial attempt to control the symptoms .with analgesics is all that is indicated

122. A 45-year-old woman has chronic indwelling polyurethane double-J stents for bilateral lower ureteral strictures from radiation therapy for cervical carcinoma. She experiences gross painless hematuria and cystoscopic examination reveals profuse bleeding from the right ureteral orifice. The next step is:
A. remove the right stent.
B. arteriogram.
C. abdominal CT scan.
D. exchange for softer stent.
E. exploratory laparotomy.
ANSWER=B
This clinical scenario is consistent with a uretero-iliac artery fistula. This has been reported most commonly after ureteral stenting for radiation-induced stricture disease for gynecologic malignancies

and after aortoiliac reconstructive procedures. Arteriography may not be diagnostic, but, if it is, temporary balloon occlusion can be life-saving. Laparotomy would be extremely difficult in most previously irradiated patients.

123. An 11-year-old boy has a swollen, ecchymotic scrotum three hours after being hit in the perineum. Urinalysis is normal. The next step is:
A. scrotal exploration.
B. isotope testicular scan.
C. Doppler scrotal ultrasound.
D. retrograde urethrogram.
E. scrotal elevation, ice, and bedrest.
ANSWER=C
A Doppler scrotal ultrasound is the most helpful of the above studies to determine the presence of hematocele and if the tunica albuginea of the testicles is intact. These findings will direct further management. If a testicular rupture or hematocele is identified, immediate surgical repair is required. It is imperative to exclude testicular torsion with doppler ultrasonography.

124. The first renal function parameter impaired by ureteral obstruction is:
A. ammonia excretion.
B. bicarbonate reabsorption.
C. potassium excretion.
D. water reabsorption.
E. chloride reabsorption.
ANSWER=D
Ureteral obstruction can cause a number of deficits in nephron function. The earliest is water reabsorption, thought to be due to defects of aquaporin water channels in the collecting duct. The other transport processes listed may be attenuated, but this occurs after development of a concentrating defect.

125. A 55-year-old man has a 6 cm solid lower pole right renal mass on CT scan. There is no adenopathy or venous involvement. The right adrenal and left kidney are normal. However, there is a 3 cm mass in the left adrenal gland that shows heterogeneous enhancement on T2-weighted MRI scan. Chest x-ray, bone scan and metabolic evaluation are normal. The next step is:
A. radical nephrectomy and postoperative immunotherapy.
B. radical nephrectomy and bilateral adrenalectomy with steroid replacement.
C. radical nephrectomy sparing right adrenal gland, and left adrenalectomy.
D. radical nephrectomy with biopsy of left adrenal gland.
E. immunotherapy followed by nephrectomy if a response is demonstrated.
ANSWER=C
This patient most likely has a solitary metastasis of renal cell carcinoma to the opposite adrenal gland. Although the prognosis is poor, some patients will be cured with resection of solitary metastases, and an aggressive surgical approach is indicated. Biopsy may not be diagnostic, and does not obviate excision. The right adrenal can be spared if it appears normal on CT scan, avoiding the need for steroid replacement therapy.

126. A nine-year-old boy is in an MVA. He has right flank pain and has voided spontaneously. Urinalysis and vital signs are normal. Physical examination reveals a right flank contusion. Chest x-ray reveals a fracture of the right 12th rib. The next step is:
A. ultrasound.
B. CT scan.
C. observation.
D. IVP.
E. renal scan.
ANSWER=B
Following blunt trauma in children, radiographic evaluation of the kidney should be undertaken in the presence of gross hematuria, hypotension, rib or spinal fractures, or signs of intraperitoneal injury. A contrast CT scan with delayed images in order to follow the course of the ureters is the best imaging study to exclude injury.

127. A 42-year-old infertile man has a semen volume of 2 ml, sperm density of 5 million/ml, and decreased sperm motility. Physical examination demonstrates a Grade III left varicocele and Grade I right varicocele. His partner's evaluation is normal. The next step is:
A. transrectal ultrasonography.
B. clomiphene citrate (Clomid).
C. intrauterine insemination.
D. left varicocelectomy.
E. bilateral varicocelectomy.
ANSWER=E
Semen parameters improve to a greater extent after bilateral varicocelectomy as compared to just repairing the dominant varicocele in patients with a Grade ll-lll varicocele and a contralateral Grade I varicocele. This approach does not extend to patients with a "subclinical" right varicocele (those only detected by Doppler). Transrectal ultrasonography and clomiphene citrate (Clomid) are not indicated in this setting. Intrauterine insemination is another alternative but varicocelectomy is more cost effective.

128. An 81-year-old man has an irregular, velvety red patch extending from the base of the penis onto the left hemiscrotum. Punch biopsy shows Paget's disease. Evaluation for occult malignancy is negative. Treatment should be:
A. external beam radiation.
B. topical 5-fluorouracil cream.
C. wide local excision with skin graft.
D. Moh's surgical excision.
E. penectomy with left scrotectomy.
ANSWER=C
Paget's disease of the penis and scrotum is a low-grade malignancy that is often associated with other cancers. The most effective treatment for a large lesion is wide local full-thickness skin excision with grafting. The risk of local recurrence is high, but distant spread is rare. Topical therapy and radiation have not been effective in this disease. Moh's surgery is utilized for smaller, superficial lesions. Penectomy is not necessary in this setting.

129. A cutaneous vesicosotomy in infants results in:
A. continent urinary diversion.
B. effective drainage of the bladder.
C. bladder dysfunction from disuse.
D. increased risk of symptomatic UTI.
E. inability to void per-urethra.
ANSWER=B
Cutaneous vesicostomy is a useful form of temporary incontinent urinary diversion and provides low-pressure effective bladder emptying while helping prevent symptomatic UTI. It has not been shown to cause any long term bladder dysfunction. Children with a vesicostomy often void per-urethra as well as drain urine through the vesicostomy.

130. A 58-year-old man has taken bicalutamide and finasteride for one month. Relative to pre-treatment levels, the following changes are expected:

	LH	T	DHT	Estradiol
A.	↑	↑	↓	↓
B.	↑	↑	↑	↑
C.	↓	↑	↑	↑
D.	↑	↓	↓	↓
E.	↑	↑	↓	↑

ANSWER=E
Bicalutamide is an androgen receptor blocker. Over time, treatment will result in decreased pituitary feedback, and the subsequent rise in LH will result in increased testosterone production. With finasteride, similar effects on LH and testosterone are expected. Finasteride will effectively suppress DHT levels by approximately 80%. Estradiol is formed by the aromatization of testosterone. Increased estradiol production occurs with bicalutamide and may result in gynecomastia. Finasteride only results in minimal increases in estradiol production.

131. Complications associated with inguinal lymph node dissection for penile cancer are documented to occur most frequently in which of the following settings:
A. palliative indication.
B. prior chemotherapy.
C. insulin-dependent diabetes.
D. congestive heart failure.

E. obesity.
ANSWER=A
Complications of inguinal lymph node dissection can include debilitating lower extremity edema, wound infection, skin flap necrosis, DVT, hemorrhagic events, and sepsis. The greatest risk factor for these complications is palliative indication, primarily patients with advanced disease with impending erosion into the vessels or through the skin. In the series from MD Anderson Cancer Center complication rates (minor and major combined) were 35% for a prophylactic dissection, 36% for a therapeutic dissection, and 67% for palliative indications. In addition, most major complications occurred in the latter group.

132. A 14-year-old boy with bladder exstrophy underwent division of the bladder neck with Mitrofanoff appendiceal stoma without bladder augmentation. Six months later, he has episodic urinary incontinence per stoma, not necessarily related to bladder fullness. A CMG on anticholinergic therapy reveals a 400cc compliant bladder without uninhibited contractions. He leaks when he sits up at the end of the study, with no evidence of detrusor contraction. The next step is:
A. observation.
B. inject stoma with bulking agent.
C. revise appendicovesicostomy.
D. replace appendix with ileal Monti tube.
E. enterocystoplasty.
ANSWER=B
In this situation, injection with a bulking agent can often make the intermittently leaking stoma dry. If not, revision would be warranted. Usually, there is no reason to replace the appendix. The urodynamics do not suggest a need for bladder augmentation.

133. Hypertension in Cushing syndrome is primarily related to:
A. elevated plasma catecholamines.
B. elevated plasma aldosterone.
C. retention of water and salt.
D. ACTH-stimulated renin.
E. elevated angiotensin II.
ANSWER=C
Cushing syndrome implies glucocorticoid excess while Cushing disease is glucocorticoid excess specifically due to a pituitary adenoma. Approximately 80% of patients with Cushing syndrome have hypertension at the time of presentation. Glucocorticoids have weak mineralocorticoid effects resulting in retention of salt and water. With excessive glucocorticoid production these weak mineralocorticoid effects can cause hypertension. Plasma catecholamines are typically not elevated.

134. A 77-year-old man has microhematuria, and serum creatinine of 1.2 mg/dl. IVP shows a normal left kidney and right hydroureteronephrosis down to a filling defect at the level of L3. Ureteroscopy shows a papillary tumor, with normal distal ureter. Biopsy of the lesion shows high-grade TCC. The next step is:
A. excision with uretero-ureterostomy.
B. distal ureterectomy with Boari flap.
C. nephroureterectomy with bladder cuff.
D. ureteroscopic ablation of the mass.
E. total ureterectomy with ileal ureter replacement.
ANSWER=C
High grade TCC of the ureter is best treated with nephroureterectomy because of the high risk of local recurrence with excision only. Ureterectomy alone is only indicated in the face of a functionally solitary kidney. Endoscopic management is only appropriate for low-grade lesions, given the strong association of high grade and advanced stage.

135. An eight-year-old girl underwent colocystoplasty one year ago for a neurogenic bladder. She now has a temperature of 101° F, vomiting, and abdominal pain. She is oliguric and urinalysis shows pyuria and bacteria. Physical examination reveals abdominal tenderness, pulse of 125, and BP 95/65. A cystogram is normal. After volume resuscitation, the next step is:
A. CT cystography.
B. suprapubic cystostomy.
C. laparotomy.
D. abdominal ultrasonography.
E. cystoscopy.
ANSWER=A
This patient has the clinical history and physical findings of a ruptured augmented bladder. Although the initial cystogram does not reveal extravasation of contrast, this does not exclude the diagnosis of bladder rupture. Because this patient appears toxic with symptoms consistent with a ruptured bladder, further evaluation is warranted. A CT cystogram is indicated as it is the most sensitive diagnostic test for extravasation. Conservative management has been employed in some children with bladder rupture, but most require laparotomy for treatment.

136. A 46-year-old man with a high velocity gunshot wound to the right lower abdomen has a normal urinalysis. During laparotomy, a small bowel perforation and right iliac vein injury are repaired. Intraoperative IVP reveals prompt bilateral excretion of contrast with no extravasation. The next step is:
A. no further evaluation.
B. ureteral exploration.
C. I.V. indigo carmine.
D. bladder filling with methylene blue.
E. retrograde ureteropyelography.
ANSWER=B
The frequency of ureteral injuries from penetrating trauma is low. These injuries may be difficult to detect because the IVP is either normal or indeterminate in approximately 70% and hematuria may be absent in up to 45%. Retrograde ureteropyelography or injection of dyes may miss such injuries because the blast injury often results in delayed sloughing. A high index of suspicion is necessary for diagnosis and the most accurate method is ureteral exploration.

137. A 73-year-old man with osteoporosis develops biochemical recurrence following radical prostatectomy. His bone scan is negative. The treatment not associated with increased bone loss is:
A. bicalutamide.
B. leuprolide.
C. leuprolide and bicalutamide.
D. abarelix.
E. orchiectomy.
ANSWER=A
Hypogonadism is a major risk factor for osteoporosis, presumably from the loss of androgens and loss of conversion of testosterone to estrogens which appear to be protective against bone mineral loss. Consequently, osteoporosis is among one of the most serious complications of androgen deprivation therapy (ADT) in men with advanced prostate cancer. Men with prostate cancer on ADT lose 6.5-17.3% more bone than age matched controls, and the risk of fracture is increased 4.0-12.5%. Fractures occurred after an average of 28 months of ADT in one study, but osteoporosis may develop after as little as nine months of therapy. In this patient, all therapies listed except bicalutamide (or any other antiandrogen) will result in castrate levels of testosterone and will result in further bone mineral loss and increase risk of bone fracture. Conversely, bicalutamide monotherapy has not been associated with osteoporosis. Despite this potential advantage, the efficacy of bicalutamide monotherapy is unproven..

138. A boy with high imperforate anus undergoes a diverting colostomy. Over the next six months he has recurrent UTIs. Ultrasonography shows a normal spine and kidneys. The most likely cause for these urinary infections is:
A. rectourethral fistula.
B. rectovesical fistula.
C. VUR.
D. neurogenic bladder.
E. urethral stricture.
ANSWER=A
Early developmental arrest of the urorectal septum in the male will produce a high supralevator type of imperforate anus that often leads to communication between the rectum and the prostatic urethra. Bacterial contamination across this fistula may cause recurrent UTIs and patients may require prophylactic antibiotics. Neurogenic bladder occurs in about 10% of cases as a result of lumbosacral spine anomalies or from injury during pull-through surgery. VUR may be associated with this anomaly but it does not actually cause UTI.

139. A 32-year-old man has pulsatile retroperitoneal bleeding immediately after Veress needle insufflation and trocar placement in the infraumbilical region for a laparoscopic procedure. The vessel most likely injured is the:
A. umbilical artery.
B. epigastric artery.
C. left iliac vein.
D. right iliac artery.
E. sacral artery.
ANSWER=D
Vascular complications of laparoscopy are relatively uncommon but can be life-threatening. Complications most commonly occur during Veress needle or peri-umbilical trocar placement. They are likely to affect either the right iliac artery, left iliac vein or inferior vena cava because of their location under the umbilicus. Pulsatile bleeding suggests an arterial source.

140. During a radical cystectomy a small 3mm papillary lesion is noted at the proximal margin of the transected ureter. Frozen section reveals a low grade Ta TCC. The next step is:
A. re-resect ureter until margin negative.
B. treat with BCG via diversion stent post-op.
C. flexible ureteropyeloscopy.
D. resect ureter and ileal ureter interposition.
E. nephroureterectomy.
ANSWER=C
The finding of a papillary lesion at the ureteral margin needs further evaluation to fully ascertain the extent of tumors in the system prior to planning the correct therapy. An on the table flexible ureteroscopy would thus be useful in detecting more proximal tumors which if present may necessitate more extensive surgery. If only CIS or dysplasia is present, intraoperative endoscopy is not indicated, because visual identification of CIS is unlikely.

141. A 14-year-old boy has a straddle injury to the perineum. Physical examination reveals ecchymosis limited to the penis and scrotum. The fascia that contains the extravasated blood is:
A. Buck's.
B. dartos.
C. Colles'.
D. external spermatic.
E. transversalis.
ANSWER=C
The corporal bodies are surrounded by tunica albuginea. Buck's fascia surrounds the corpora cavernosa and corpus spongiosum. If the injury to the urethra is contained within Buck's fascia the hematoma will remain confined to the shaft of the penis. Rupture through Buck's fascia leads to extension of the hematoma into the scrotum. The classic presentation of a urethral injury contained within Colles' fascia is that of a butterfly hematoma of the perineum. Superiorly the extravasation can extend to the clavicles where Scarpa's fascia, the abdominal extension of Colles' fascia, attaches.

142. A 24-year-old man who has fallen three stories has a CT scan for evaluation. The right kidney appears normal, but the left kidney shows only a thin cortical rim of contrast without contrast in the remainder of the parenchyma. This is compatible with:
A. pre-existing hydronephrosis.
B. renal arterial injury.
C. congenital vascular anomaly.
D. renal vein thrombosis.
E. renal contusion.
ANSWER=B
.The cortical rim sign is usually a sign of renal arterial injury Contrast enhancement of the cortical rim is due to collateral blood flow without enhancement of the parenchyma

143. A 52-year-old man with hematuria has a right-sided 6 cm infiltrative renal mass distorting the collecting system. He had a left radical nephrectomy for RCC three years ago. Chest and abdominal CT scans are negative, but PET scan is strongly positive in one mediastinal node and a lesion in the liver. Urinary cytology reveals atypia. The next step is:
A. radiofrequency ablation.
B. partial nephrectomy.
C. radical nephrectomy.
D. systemic interleukin-2.
E. percutaneous biopsy of the renal mass.
ANSWER=E
This patient has metastatic disease, and in light of the solitary kidney it is crucial to differentiate renal cell carcinoma from TCC. In either case, the most reasonable approach is systemic therapy rather than nephrectomy and dialysis. If he has a dramatic response to systemic therapy then one could consider nephrectomy at that time. The role of PET scan is still under study in kidney cancer, but a positive PET is highly suggestive of metastatic disease.

144. A nine-year-old boy has primary nocturnal enuresis. He has used an alarm for four months but continues to wet the bed. He has daytime urgency and voids seven to eight times a day, but remains dry during that time. Repeat urinalysis is normal. The next
step is:
A. voiding diary.
B. urodynamics.
C. VCUG.
D. desmopressin (DDAVP).
E. oxybutynin.
ANSWER=A
Children who initially fail an alarm system in the treatment of nocturnal enuresis will benefit from combination therapy: enuretic alarm with pharmacological treatment. Assessment of urine volume and functional bladder capacity by measuring daytime voided urine volume will assist in the choice of pharmacological treatment. Patients with > 70% of estimated functional bladder capacity will have an improved response to DDAVP. Anticholinergic medication is useful in patients with < 70% functional bladder capacity.

145. A 32-year-old man with infertility has an ejaculate volume of 3 ml, sperm count of 15 million/ml, 50% motility, and an elevated serum FSH. Physical examination reveals bilaterally small testes, normal vasa, and no evidence of a varicocele. His 28-year-old wife has a normal evaluation. The most appropriate next step is:
A. intrauterine insemination.
B. testicular biopsy.
C. in vitro fertilization.
D. clomiphene citrate (Clomid).
E. antisperm antibody testing.
ANSWER=A
The couple is infertile due to idiopathic male factor. Testicular biopsy is unlikely to be helpful in a patient with oligospermia. Any intervention used in this setting is considered empirical. The main choice is between attempts to improve the husband's fertility or assisted reproductive techniques to improve the chances of conception without altering sperm quality. It is controversial whether Clomid is effective in men with oligospermia but it is definitely not effective in an individual with an elevated serum FSH. This leaves either intrauterine insemination (IUI) or in vitro fertilization (IVF). It is most reasonable to start with IUI in this couple since the wife is under 30 and the husband's total motile sperm count is well above 10 million. IVF would be the first therapeutic option if there were a significant female factor or his sperm count were extremely low.

146. A 65-year-old man with metastatic prostate cancer is treated with an LH-RH agonist. Two years later, he has a worsening bone scan, retroperitoneal adenopathy, and a PSA level of 500 ng/ml. The plasma testosterone is 30 ng/dl. The therapy most likely to provide objective tumor regression is:
A. chemotherapy.
B. bilateral orchiectomy.
C. addition of an antiandrogen.
D. strontium-89.
E. prednisone.
ANSWER=A
Although there are few long-term complete responses using chemotherapy in patients with hormone refractory prostate cancer, objective responses with PSA reductions in approximately 50% to 70% of patients treated with estramustine and vinblastine or mitoxantrone, and docetaxel-based therapy have been reported and demonstrate prolonged survival. Bilateral orchiectomy is of little value in a patient with castrate levels of testosterone. Addition of an

anti-androgen in this situation can decrease the serum PSA level temporarily, but is less effective than chemotherapy. Strontium is effective for symptomatic control of bone pain. Steroids occasionally can be useful but usually only if combined with some other therapy such as suramin or ketoconazole.

147. A six-month-old boy with spina bifida has moderate hydroureteronephrosis on an ultrasound examination. A cystogram shows trabeculation but no reflux. The most likely cause of the upper tract dilation is:
A. associated constipation.
B. urine storage pressure greater than 40 cm H20.
C. uninhibited detrusor contractions.
D. unsuspected urinary infection.
E. detrusor-sphincter dyssynergia.
ANSWER=B
Storage pressures in the bladder of greater than 40 cm H20 lead to deleterious effects on the upper tracts even in the absence of reflux. "Safe" storage pressures are less than 40 cm H20. A likely cause of high detrusor leak point pressure in children with spina bifida is a denervated external sphincter resulting in fixed urethral resistance.

148. A 28-year-old man with primary infertility has a microdeletion of the DAZ region of the Y chromosome (AZFc). One semen analysis reveals azoospermia. His wife is scheduled for in vitro fertilization. Prior to testicular sperm extraction, he should have:
A. serum dihydrotestosterone level.
B. repeat semen analysis with centrifugation.
C. renal ultrasound.
D. serum LH.
E. transrectal ultrasound.
ANSWER=B
Y chromosome microdeletions are common in severe male infertility. Although many men with AZFc deletions are azoospermic, occasional sperm are often found in the ejaculate and may obviate the need for testicular sperm extraction. Renal, prostatic and X chromosome abnormalities are rarely found in association with Y microdeletions.

149. During radical retropubic prostatectomy, a well-defined rectal laceration is noted. There is no fecal spillage. No preoperative bowel preparation was administered. This patient should be managed with completion of the prostatectomy and:
A. descending colostomy and Hartmann's pouch.
B. descending colostomy and mucus fistula.
C. primary closure of the laceration.
D. rectal lavage with antibiotic solution and closure.
E. temporary transverse loop colostomy.
ANSWER=C
Rectal injuries are reported to occur in less than 0.5% of radical prostatectomies. Therefore, routine preoperative bowel preparation is unnecessary. A two-layer closure of the rectal wall is sufficient in most cases and digital anal dilation may also be used. If the edges of the rectal wound are devitalized, the patient has received previous pelvic radiation, or there is significant fecal contamination, then a diverting colostomy with Hartmann's pouch should strongly be considered. A mucus fistula is not indicated in the absence of distal obstruction.

150. A three-month-old boy had a lumbar myelomeningocele closed at birth. The finding associated with the potential for detrusor-sphincter dyssynergia is:
A. level of lesion.
B. intact bulbocavernosus reflex.
C. lower extremity movement.
D. spontaneous voiding.
E. decreased anal sphincter tone.
ANSWER=B
Preservation of the sacral nerve arcs, as indicated by an intact bulbocavernosus reflex, suggests the potential for detrusor-sphincter dyssynergia. While other parameters may also suggest the presence of intact sacral arcs, the bulbocavernosus reflex is the most clinically specific. Unlike spinal cord injury, in lumbosacral spina bifida neural function cannot be predicted by the level of the lesion.

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1. During maximal water reabsorption, the concentration of calcium within the kidney is highest in:
A. Bowman's space.
B. Henle's loop.
C. the proximal convoluted tubule.
D. the distal convoluted tubule.
E. the collecting duct.
ANSWER=E
Maximal water reabsorption and maximal concentrations of urinary constituents (solutes), including calcium, occur in the collecting ducts.

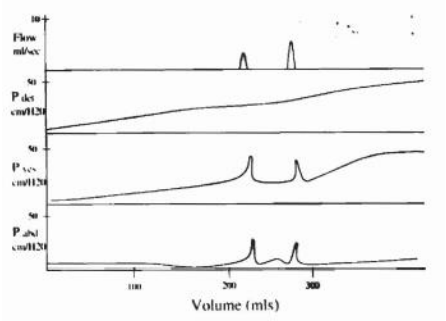
2. A patient has recurrent nephrolithiasis and Type I renal tubular acidosis. Urolithiasis is most likely secondary to which metabolic problem:
A. excessive production of 1,25-dihydroxyvitamin D.
B. a lack of osteopontin.
C. hypocitraturia.
D. hyperoxaluria.
E. hyperuricosuria.
ANSWER=C
Hypocitraturia is present in > 75% of patients with renal tubular acidosis (Type 1) and associated nephrolithiasis. Osteopontin is an inhibitor of calcium oxalate crystallization, but is not a major factor in renal tubular acidosis. Hypercalciuria does occur in this setting, and may contribute to stone formation. Hyperoxaluria and hyperuricosuria are not associated with renal tubular acidosis.

3. During transurethral resection of a papillary bladder tumor on the left lateral wall, the patient has an obturator reflex. The bladder wall is thinned, but the tumor remains intact. Prior to resuming resection, the next step is:
A. reduce cutting current and distend bladder to minimize movement.
B. increase cutting current to minimize contact time and reduce bladder volume.
C. switch irrigating fluid from glycine to water to reduce conductivity.
D. reduce cutting current and bladder volume.
E. switch cutting current from pure to blend and secure left leg.
ANSWER=D
Obturator nerve reflex may be evoked while resecting lesions on the lower lateral wall and bladder neck area, particularly in a thin patient. This reflex results in adductor spasms of the leg, as well as inward movement of the bladder wall during resection that could result in perforation. The obturator reflex may be prevented by decreasing the cutting current and avoiding distension of the bladder during resection. If this is not effective, paralytic agents can be used during general anesthesia, or in some cases an obturator nerve block can be administered.

4. Four months after a pubovaginal sling procedure, a woman requires CIC for persistent urinary retention. The next step is:
A. alpha-blocker.
B. bethanechol.
C. urethral dilation.
D. continue CIC.
E. urethrolysis.
ANSWER=E
Lifelong CIC, although effective, is inappropriate if corrective surgery can restore normal voiding. Oral bethanechol has not been shown to effectively improve bladder contractility and is not indicated in the presence of bladder outlet obstruction. Alpha-blockers such as terazosin and urethral dilation are options but represent suboptimal therapy when compared to anatomic correction by urethrolysis. The ability of videourodynamics to predict surgical success and whether repeat anti-incontinence surgery should be performed at the same time as urethrolysis is controversial. Most patients however resume normal voiding and are continent without repeat surgery. If urinary retention occurs in someone undergoing a mid-urethral sling, sling incision should be undertaken much sooner.

5. An asymptomatic, 72-year-old man has a fever of 102° F of one-week duration. A urine culture shows Aerobacter aerogenes greater than 105 col/ml. His WBC is 18,000. CT scan of the abdomen reveals an ill-defined mass in the upper pole of his right kidney on both the pre- and post-contrast studies. Ultrasound shows internal echoes in the mass. The mass is most likely:
A. segmental renal infarct.
B. segmental pyelonephritis.
C. renal tumor.
D. xanthogranulomatous pyelonephritis.
E. renal abscess.
ANSWER=E
The clinical and radiographic findings are most consistent with renal abscess. Segmental pyelonephritis would have a normal pre-contrast study. In xanthogranulomatous pyelonephritis, a stone is usually present and the organism is most commonly an E. coli or Proteus. Given the clinical and radiographic findings, tumor is less likely.

6. A 65-year-old man has urinary incontinence. Three years earlier, he underwent radical retropubic prostatectomy for prostate cancer followed by adjuvant external beam radiation. His serum PSA is now undetectable. PVR is minimal. His urodynamic evaluation while taking anticholinergics is shown in the exhibit. The next step is:
A. transurethral collagen injection.
B. perineal sling.
C. artificial urinary sphincter.
D. augmentation cystoplasty.
E. augmentation cystoplasty and artificial urinary sphincter.



ANSWER=E
The urodynamic tracing provided demonstrates evidence of poor compliance as indicated by a steady rise in the detrusor pressure with filling, and intrinsic sphincter deficiency as indicated by leakage of urine with increases in abdominal pressure. Adequate treatment of the incontinence requires improving the bladder compliance and increasing outlet resistance. This is best accomplished by an augmentation cystoplasty and artificial urinary sphincter. Placement of an artificial sphincter or sling alone risks damage to the upper urinary tract and continued incontinence despite the concomitant anticholinergic treatment because of persistently poor compliance. Augmentation cystoplasty alone will not resolve the stress urinary incontinence. Transurethral collagen injection is ineffective at increasing outlet resistance and will not address the compliance abnormality.

7. Widespread and indiscriminate human immunodeficiency virus (HIV) antibody testing is not recommended because the:
A. assays are not sensitive.
B. false-negative rate is too high.
C. false-positive rate is too high.
D. risk of infection is low.
E. prevalence of infection is high.
ANSWER=C
Screening programs for HIV infection use a sequence of tests that start with an enzyme immunoassay (EIA) that has a sensitivity > 99%; the probability of a false-negative test result is remote. The specificity of current EIA tests is approximately 99% if repeated tests are positive. In this situation, more sensitive assays, such as a Western blot, are performed. A positive confirmatory test is considered evidence of HIV infection. The problem with indiscriminate testing is the non-zero, false-positive rate. Screening a population in which the prevalence of HIV is low will lead to the identification of more individuals who have falsely positive tests than individuals who actually have an infection. Selective screening of high-risk individuals or groups is more likely to accurately identify infected patients.

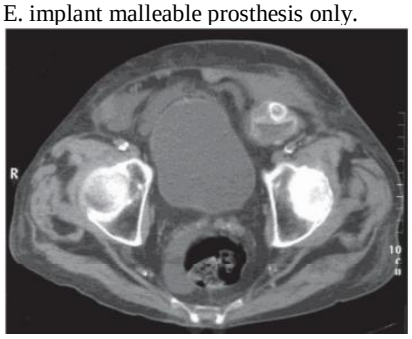
8. Relaxation of the external sphincter during a bladder contraction requires the presence of intact neural pathways between the pontine micturition center and the:
A. basal ganglia.
B. cerebral cortex.
C. sympathetic ganglia.
D. anterior horn cell nucleus in the thoracolumbar spinal cord.
E. Onufs nucleus in the sacral spinal cord.
ANSWER=E
Coordinated relaxation of the external urinary sphincter while voiding requires intact neurons between the pontine micturition center and the sacral spinal cord. Projections from the pons to Onufs nucleus in the sacral cord allows relaxation of the intrinsic portion of the external sphincter termed the rhabdosphincter. In addition, anterior horn cells in the sacral cord responsible for the pudendal nerve are modulated by the pons so that pelvic floor musculature (i.e. levator ani) do not contract during micturition. Interruptions of pathways between the pons and sacral spinal cord, such as with spinal cord injury and multiple sclerosis, can lead to the development of detrusor external sphincter dyssynergia. Suprapontine areas such as the cerebral cortex and cerebellum are not required for coordinated voiding, however can lead to detrusor overactivity when injured. Sympathetic innervation originates in the thoracolumbar spinal cord and is responsible for coordinating internal sphincter activity.

9. A 55-year-old man with bladder cancer undergoes a radical cystectomy with a planned orthotopic neobladder. Intraoperative frozen-section reveals negative lymph nodes but invasive TCC is detected at the prostatic apical margin. The best management is:
A. ileal neobladder.
B. ileal neobladder and adjuvant pelvic radiotherapy.
C. ileal neobladder and adjuvant chemotherapy.
D. ileal conduit.
E. continent cutaneous pouch.
ANSWER=E
The presence of invasive transitional cell carcinoma of the prostate carries a high risk of urethral recurrence and is a contraindication to orthotopic bladder replacement. All patients undergoing cystectomy should be counseled about the possibility that intra-operative findings might change the planned form of urinary diversion and all of the alternatives should be discussed prior to surgery. Of the choices listed, the continent cutaneous pouch is the best option for a patient expecting to awake with a continent diversion, although rectal pouches are also acceptable.

10. An otherwise healthy 65-year-old man elects active surveillance for T1c, PSA 8.2 ng/dl, Gleason score 6 (1 of 12 cores positive) prostate cancer. His digital rectal examination remains normal and subsequent serial PSA values of 7.1, 10.2, and 8.9 ng/dl at 6, 12, and 18 months respectively. The next step is:
A. endorectal MRI scan.
B. TRUS and prostate biopsy.
C. bone scan.
D. ProstaScint®scan.
E. definitive local therapy.
ANSWER=B
This patient has favorable risk (normal digital rectal examination, PSA <10, Gleason score < 7, and minimal core involvement) clinically localized prostate cancer. Although there is no clinical or biochemical evidence at this point of disease progression, a repeat prostate biopsy at 18 months can provide important information useful in management. This is especially true for men electing active surveillance who have a life-expectancy > 10 to 15 years and are otherwise candidates for definitive therapy. A repeat biopsy may provide information that would lead one to consider local therapy. This includes grade progression and an increase in the percentage of the biopsy specimen involved with cancer.

11. The characteristic that distinguishes primary hypoadrenalism from secondary (pituitary) hypoadrenalism is:
A. hypotension.
B. metabolic alkalosis.
C. cutaneous hyperpigmentation.
D. hypernatremia.
E. hyperkalemia.
ANSWER=C
Since the amino acids of ACTH are identical to the terminal amino acids of melanocyte stimulating hormone (MSH), over-production of ACTH results in cutaneous hyperpigmentation. Adrenal loss results in lack of negative feedback and over-production of ACTH. Pituitary failure, on the other hand, results in a lack of ACTH. Vitiligo may also be seen in these patients.

12. A 62-year-old diabetic man had inflatable penile prosthesis cylinders removed for infection. Six months later, he requests prosthesis reimplantation. He has suprapubic discomfort. On physical exam, the corpora are extremely fibrotic. Pelvic CT scan is shown in the exhibit. The next step is:
A. pelvic exploration, reimplant at later date.
B. pelvic exploration, immediate reimplantation.
C. reimplant multi-component inflatable prosthesis.
D. I.V. antibiotics for two weeks, then reimplant multi-component prosthesis.
E. implant malleable prosthesis only.



ANSWER=A
The CT scan shows a retained prosthesis reservoir, situated adjacent to the bladder. The reservoir should have been removed at the time of the explant. Prior to reimplantation, the reservoir should be removed as a first stage. The risk is high that the retained foreign body harbors bacteria that will secondarily infect a new prosthesis if the reservoir is left in place or is removed simultaneous with device reimplantation, even if the patient was asymptomatic. There should be at least 4-6 weeks between the reservoir explantation and placement of a new prosthesis.

13. The agent that has proven efficacy for prevention of acute urinary retention and the need for surgery in men with BPH is:
A. saw palmetto.
B. flutamide.
C. finasteride.
D. tamsulosin.
E. doxazosin.
ANSWER=C
Although all of these agents can be used to treat BPH, the only one that has demonstrated efficacy in preventing acute urinary retention and a need for surgery is finasteride. Alphaadrenergic antagonists, in particular doxazosin, have been recently found to delay retention and need for surgery over the short-term but ultimately perform similar to placebo.

14. Which of the following correlates with improved patency and pregnancy rates after vasectomy reversal:
A. absence of sperm granuloma.
B. increased diameter of proximal vas.
C. a multi-layered anastomosis.
D. the length of the proximal vas.
E. an increase in cross-sectional tubular area of the testis.
ANSWER=D
Improved patency and pregnancy after vasectomy reversal are correlated with a short time interval between vasectomy and reversal. It has been demonstrated that a proximal vas segment in excess of 2.7 cm predicts the presence of vasal fluid with whole sperm. It is generally believed that the presence of a granuloma and a smaller luminal diameter are favorable, as pressure below the level of the vasectomy may be less. Testicular specimens obtained after vasectomy reveal increased thickness of the seminiferous tubules, reduction in the number of Sertoli cells and spermatids, and an increase in the cross-sectional tubular area. The presence of interstitial fibrosis has an adverse effect on post-vasovasostomy fertility.

15. A 55-year-old obese woman with multiple medical problems is scheduled for a cystectomy and urinary diversion. Pre-operative CT urogram shows mild bilateral hydroureteronephrosis. At the time of cystectomy the mesentery of the bowel is shortened and infiltrated with fat. The most appropriate type of diversion is:
A. continent cutaneous diversion.
B. bilateral cutaneous ureterostomies.
C. antirefluxing transverse colon conduit.
D. ileal conduit with loop stoma (Turnbull).
E. antirefluxing sigmoid colon conduit.
ANSWER=D
The Turnbull loop stoma is the most appropriate diversion in this obese patient with a short mesentery. There will be less tension on the mesentery as it traverses the abdominal wall and it will be easier to obtain a good stomal bud above skin level. Cutaneous ureterostomy requires a ureter dilated to at least 1 cm, thick walled and well vascularized. In adults with normal ureters there is a high incidence of stricture from ischemia of the cutaneous portion of the nondilated ureter. There is a higher incidence of ureterointestinal stricture using an antireflux technique with the transverse colon. The sigmoid colon may not be the best choice with cystectomy as some surgeons ligate the internal iliac arteries which may compromise rectal blood supply. The short mesentery would also preclude using an ileal or ileo-cecal continent reservoir.

16. An independent factor associated with poor prognosis in patients with local recurrence of renal cell carcinoma following radical nephrectomy is:
A. pulmonary metastasis.
B. age > 65 years.
C. ipsilateral adrenal location.
D. time to local recurrence.
E. size of local recurrence.
ANSWER=E
Most pelvic bleeding following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization. Ligation of hypogastric arteries or veins may not be helpful and risk continued bleeding while these vessels are being identified and controlled. Intraoperative arteriography is time consuming, technically difficult, and provides poor images. The use of a MAST (medical anti-shock trousers) suit is not a proven modality in such situations.

17. During repair of an intraperitoneal bladder rupture resulting from blunt trauma, a large, expanding, bilateral pelvic hematoma is noted. Significant bleeding is seen coming through a tear in the peritoneum overlying the hematoma on the right. Although local pressure significantly slows the hemorrhage, persistent bleeding is noted once pressure is removed. The next step is:
A. intraoperative arteriography.
B. ligate right hypogastric artery.
C. ligate right hypogastric vein.
D. place patient in a MAST suit.
E. pack pelvis at site of bleeding.
ANSWER=E
Most pelvic bleeding following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization. Ligation of hypogastric arteries or veins may not be helpful and risk continued bleeding while these vessels are being identified and controlled. Intraoperative arteriography is time consuming, technically difficult, and provides poor images. The use of a MAST (medical anti-shock trousers) suit is not a proven modality in such situations.

18. A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on digital rectal exam. Serum PSA is 3.0 ng/ml. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The next step is:
A. observation.
B. repeat prostate biopsies in three months.
C. cycloserine for six months.
D. INH for six months.
E. INH and rifampin for six months.
ANSWER=A
Prostatic granulomas are recognized with increasing frequency in men following intravesical BCG therapy. Although long-term outcome is uncertain, the granulomas are generally asymptomatic and no therapy is recommended. This patient had a prior normal digital rectal exam of the prostate and his serum PSA is normal. Thus, it is unlikely he has prostate cancer and further biopsies are no more indicated in him than in any other age matched male patient.

19. A 58-year-old patient has LUTS. The diagnostic test that should routinely be performed in addition to history and physical examination is:
A. urinalysis.
B. serum creatinine.
C. uroflowmetry.
D. PVR.
E. pressure flow study.
ANSWER=A
According to the recently released guidelines on management of benign prostatic hyperplasia (BPH) by the AUA Practice Guideline Committee, recommended components of the diagnostic algorithm for routine evaluation are history and physical examination focusing on the urinary tract, digital rectal examination and urinalysis. PSA is a diagnostic option.

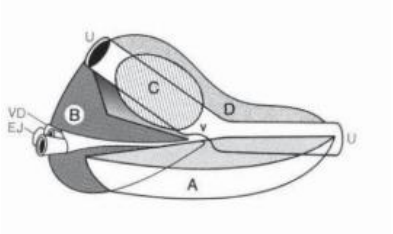
20. A 35-year-old man with azoospermia desires a biological child. Testosterone is 275ng/dl (normal 300-1000 ng/dl), LH is 28mlU/ml (normal 2-10 mill/ml) and FSH is 15mlU/ml (normal 2-12mlU/ml). Both testes are 3 cm in length and soft. The next step is:
A. administer clomiphene citrate.
B. administer hCG.
C. scrotal ultrasound.
D. cranial MRI scan.
E. microsurgical testicular sperm extraction.
ANSWER=E
With FSH greater than 7.6 mlU/ml and testis axis less than 4.6 cm, the probability of nonobstructive azoospermia is 89%. Neither clomiphene citrate nor HCG is effective in a patient with highly elevated LH, as clomiphene acts to increase LH secretion and HCG is an LH surrogate. Scrotal ultrasound would not reveal more than that identified on physical examination. As the pituitary is responding appropriately to low serum testosterone, MRI is not indicated. The only chance of a biological child for this patient with non-obstructive azoospermia would be testicular sperm extraction for intracytoplasmic sperm injection.

21. During laparoscopic left radical nephrectomy, judicious placement of clips on the primary branches of the main renal vein is most important to facilitate:
A. lymphadenectomy.
B. en bloc excision with negative margins.
C. adrenalectomy.
D. application of the endovascular stapler onto the main renal vein.
E. dissection and occlusion of the main renal artery(ies).
ANSWER=D
Excessive placement of clips when managing the gonadal, adrenal, or lumbar branches can severely restrict the working space available for safe placement of the endovascular stapler later in the case, when the main renal vein is addressed. Application of the stapler across a clip can lead to intraoperative or postoperative hemorrhage and must be avoided.

22. A 28-year-old man has distal penile pain two weeks following penile revascularization using an inferior epigastric artery to deep dorsal vein anastomosis. On examination, he has glans edema and patchy necrosis of the glans skin. The next step is:
A. pudendal arteriography.
B. duplex Doppler ultrasound of the penis.
C. ligation of the deep dorsal vein.
D. revision of the arterio-venous anastomosis.
E. local skin care.
ANSWER=C
Deep dorsal vein arterialization has been used as a revascularization surgery for young men with pure arteriogenic erectile dysfunction who have common penile or cavernosal artery occlusive disease. This procedure is associated with the unusual yet glans threatening

complication of glans hyperemia. The patient presents with pain, edema and eventually skin changes including necrosis. The emergent treatment of this complication involves ligation of the arterialized vein distal to the anastomosis.

23. A schematic drawing of a sagittal view of the prostate in a 21-year-old man is shown in the exhibit. The letter "U" corresponds to the urethra. The letter "C" corresponds to the:
A. peripheral zone.
B. central zone.
C. transition zone.
D. fibromuscular stroma.
E. median lobe.



ANSWER=C
The transition zone surrounds the urethra and is the site of origin of BPH. Gradual enlargement of the transition zone compresses the central zone (B) and peripheral zone (A) in older men. D is the fibromuscular stroma and U is urethra.

24. An 80-year-old woman is referred by her gynecologist for evaluation of an asymptomatic8 mm mass protruding from the urethral meatus. It arises from the anterior aspect of the distal urethra and is covered with smooth, pink, non-ulcerated epithelium. Appropriate initial management is:
A. observation.
B. excision.
C. fulguration.
D. estrogen cream.
E. laser ablation.
ANSWER=A
Urethral caruncle differs from prolapse by arising from only one quadrant of the meatus, usually being covered by smooth epithelium, not being congested or ulcerated and painless. If the caruncle is ulcerated, bleeds persistently, or is painful, it merits excision to relieve symptoms and assure absence of carcinoma. For the latter reason, excisional biopsy is preferable to other treatments if intervention is required. Laser ablation is not indicated. The association of caruncle and urethral carcinoma is extremely rare, and thus, the asymptomatic non-ulcerated caruncle should be left alone.

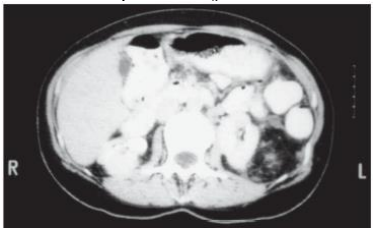
25. A 45-year old woman has persistent voiding dysfunction 18 months following a low anterior resection for rectal cancer. The most likely pattern on videourodynamics will be:
A. normal compliance, bladder neck incompetence, fixed external sphincter tone.
B. decreased compliance, bladder neck incompetence, fixed external sphincter tone.
C. decreased compliance, competent bladder neck, normal external sphincter tone.
D. normal compliance, competent bladder neck, normal external sphincter tone.
E. decreased compliance, bladder neck incompetence, normal external sphincter tone.
ANSWER=B
The most common pattern for patients with prolonged post-radical pelvic surgery voiding dysfunction is failure of bladder contraction or impaired bladder contractility, and obstruction secondary to fixed striated sphincter tone. Urodynamically, such patients most generally manifest reduced compliance, an incompetent bladder neck and fixed external sphincter tone.

26. A 26-year-old man sustains a gunshot wound to the left flank. Exploration reveals normal kidneys. One week later, he has an acute rise in serum creatinine to 3.5 mg/dl.
The best next step is:
A. abdominal and pelvic CT scan.
B. retrograde pyelography.
C. abdominal ultrasonography.
D. IVP.
E. arteriography.
ANSWER=B
The delayed increase in serum creatinine is likely dueto reabsorption from an unrecognized ureteral leak/injury. During abdominal exploration it is frequently difficult to determine the viability of surrounding tissue, especially after a high velocity bullet wound. If one suspects a ureteral injury the best diagnostic test to confirm a delayed ureteral injury with extravasation is a retrograde pyelogram. CT gives excellent three dimensional assessment of other structures but may not identify and locate a ureteral injury without the use of I.V. contrast, which is contraindicated in this case. Ultrasound is operator dependent and is not the optimal test to identify a ureteral injury especially in the setting of an ileus and overlying bowel gas. Arteriography may be indicated if one suspects a renal hilar injury; in this situation it would not add additional information and the intravenous contrast load would be worrisome in the setting of an elevated serum creatinine. IVP is not indicated in this situation.

27. The best method to limit postoperative chronic leg edema following a inguinal groin dissection for penile cancer is to:
A. preserve the saphenous vein.
B. divide the inguinal ligament.
C. transpose the sartorius muscle over the vessels after dissection.
D. limit the dissection superficial to Scarpa's fascia.
E. maintain the plane of dissection anterior to the femoral vessels.
ANSWER=E
One of the most debilitating potential long-term complications of inguinal lymph node dissection is lower extremity edema. Edema is partially preventable by adherence to good operative technique. Preservation of the saphenous vein may not be a major influencing factor and ligation at the femoral triangle does not decrease edema. The operation can be performed without division of the inguinal ligament in most patients. Transposition of the sartorius muscle may help cover the bare surface of the femoral vessels but does not affect edema. The dissection should proceed inferior to Scarpa's fascia to decrease the incidence of flap necrosis. Dissection lateral and behind the femoral vessels should be avoided because of the presence of large lymphatic channels in this area.

28. Normal bladder compliance during physiologic filling is primarily due to:
A. autonomic nerve activity.
B. circulating hormones.
C. cholinergic receptor activity.
D. local secretion of nitric oxide
E. bladder wall viscoelasticity.
ANSWER=E
The main determinants of compliance are the elastic and viscoelastic properties of the bladder. When these are destroyed as in fibrosis of the bladder, poor compliance results. Neurogenic influences may be operative in late stages of filling. Bladder smooth muscle maintains a steady level of contractility and tone that is dependent on activity in the autonomic nerves, circulating hormones, local metabolites, locally secreted agents such as nitric oxide, and temperature.

29. A 49-year-old woman with occasional epigastric discomfort is evaluated with CT scan and renal angiography shown in exhibits 1 and 2. The best management is:
A. observation.
B. selective embolization.
C. partial nephrectomy.
D. percutaneous drainage.
E. radical nephrectomy.



ANSWER=B

Renal angiography clearly demonstrates that this mass is arising from the kidney and given the fat density within the lesion, the diagnosis is renal angiomyolipoma. The lesion is relatively large, > 4.0 cm, so observation is not an appealing option due to concern about hemorrhage, which would likely lead to loss of the kidney. A nephron-sparing approach should be considered, especially with the smaller right kidney. Given the size and location of the lesion, selective embolization would be the best option and partial nephrectomy is reserved for refractory cases.

30. The best method to distinguish a benign from a malignant colovesical fistula is:

A. cystoscopy with biopsy.
B. barium enema and cystogram.
C. CT scan.
D. sigmoidoscopy with biopsy.
E. urine cytology.

ANSWER=D

If the physical findings and symptoms of patients with GU involvement secondary to either adenocarcinoma of the colon or diverticulitis are compared, they are nearly identical. The cystoscopic findings of bullous edema or fistula formation in the bladder are similar. Ureteral deviation or obstruction secondary to a mass in the left lower abdominal quadrant can be due to both disease processes. Sigmoidoscopy with biopsy is the best method to distinguish these diseases, however the correct diagnosis often cannot be made until pathological examination of the surgical specimen. Bladder biopsies are rarely positive.

31. A 65-year old man three months following a bilateral nerve sparing radical prostatectomy has erectile dysfunction. He has failed oral therapy and wishes not to pursue intracavernosal injection therapy. He attempts intra-urethral alprostadil 1000 meg. The most likely occurrence is:

A. failure to get an erection.
B. penile pain.
C. headache.
D. hypotension.
E. urethral bleeding.

ANSWER=A

Intra-urethral prostaglandin administration is a reasonable alternative to intracavernosal injection therapy. Significant decrease in blood pressure occurs in approximately 2% of men. Penile pain is estimated to occur in 18-33% of men. Only 40% of men will consistently get a penetration rigidity erection with intraurethral alprostadil. Urethral bleeding is reported in about 5% of men and headache is rare.

32. A 27-year-old woman with autosomal dominant polycystic kidney disease continues to experience fever and flank pain despite two weeks of appropriate oral antimicrobial therapy for an E. coli UTI. A urine culture reveals no growth. The next step is:

A. renal ultrasonography.
B. IVP.
C. CT scan.
D. retrograde pyelogram.
E. isotope renogram.

ANSWER=C

Upper tract UTI's are common in patients with polycystic kidney disease, especially women. These can be divided into parenchymal and cyst infections. The parenchymal infections respond better than cyst infections to treatment. If the patient does not respond to an antibiotic or the urine culture is negative, one must consider that the infection may be present in a noncommunicating cyst. A CT scan is the diagnostic procedure of choice for renal abscesses, particularly in difficult cases such as polycystic kidney disease, since it provides excellent delineation of the tissue. IVP, retrograde pyelography, and ultrasonography are not indicated in this situation. Radionuclide imaging with gallium and indium is sometimes useful in evaluating patients with renal abscesses. Percutaneous cyst aspiration is the treatment of choice, once the diagnosis is made.

33. A 51-year-old man has a continent urinary diversion using detubularized right colon. Three months later, he is asymptomatic but a pouchogram shows Grade III right ureteral reflux. CT urogram is normal. The next step is:

A. right to left transureteroureterostomy.
B. reimplant the right ureter with a longer tunnel.
C. antibiotic prophylaxis.
D. pouch catheterization every two hours.
E. observation.

ANSWER=E

There is no evidence that reflux is detrimental or progressive with short term follow-up. Unless this patient develops recurrent problems with infection or progressive renal deterioration, observation alone is appropriate.

34. The ideal candidate for medical therapy with alpha-blockers for BPH should have:

A. severe symptoms on the AUA Symptom Score.
B. bothersome symptoms.
C. a previous episode of acute urinary retention.
D. recurrent gross hematuria.
E. a large prostate on digital rectal exam.

ANSWER=B

The ideal candidate for alpha blockers should have symptoms that are sufficiently bothersome that the patient will commit to a lifetime of medical therapy. Although the severity of the AUA Symptom Score correlates well with bother there are patients with moderate scores who have severe bother and patients with severe symptoms who have less bother. Recurrent gross hematuria due to BPH is best treated with either 5-alpha-reductase inhibitor or surgical management. Prostate size does not correlate with symptom severity, degree of urodynamic obstruction or treatment outcomes and should not be considered in deciding whether active treatment is required.

35. A 32-year-old man has azoospermia. Y chromosomal microdeletion assay reveals AZFb and AZFc deletions. The next step is:

A. adoption.
B. clomiphene citrate.
C. recombinant FSH.
D. testis biopsy.
E. microsurgical testis sperm extraction.

ANSWER=A

The long arm of the Y chromosome harbors genes intrinsic to spermatogenesis, including the azoospermia factor (AZF). While males with AZFc deletions may or may not have sperm in the seminiferous epithelium, an AZFa and/or AZFb deletion in combination with an AZFc deletion uniformly results in a Sertoli cell only phenotype. Biopsy is unnecessary, and microsurgical testis sperm extraction will not yield sperm. Endocrine therapy with clomiphene citrate to stimulate Leydig cell production of testosterone, or with recombinant follicle stimulating hormone to stimulate Sertoli cell function, will not yield sperm as no germ cells are present.

36. A 23-year-old man is referred for treatment after a left trans-scrotal orchiectomy. Pathology shows an embryonal cell carcinoma mixed with elements of seminoma. AFP, beta-hCG, and chest x-ray are normal. No inguinal lymph nodes are palpable. In addition to excision of the left spermatic cord, treatment should include:

A. bilateral superficial inguinal lymph node dissection.
B. left superficial inguinal lymph node dissection.
C. biopsy of left sentinel inguinal node.
D. radiation of left inguinal nodes.

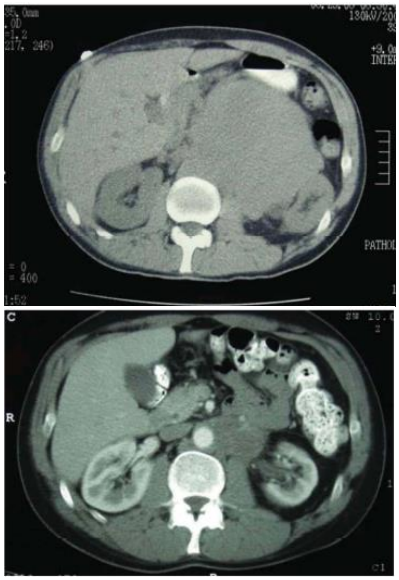
E. observation of inguinal nodes.
ANSWER=E
It was previously believed that scrotal surgery markedly increased the risk of local recurrence and inguinal node metastases. Further evidence now suggests that this risk has been overestimated and a formal hemiscrotectomy or prophylactic inguinal node dissection is rarely indicated. A meta-analysis of all evaluable reported series (1182 total cases, 206 with scrotal violation) found that the risk of local recurrence increased from 0.4% to 2.9% with scrotal violation, but there was no difference in the distant recurrence or survival rates. In clinical Stage I testis tumors, the previous scrotal scar should be widely excised along with any remaining spermatic cord. The inguinal nodes should be preserved.

37. Hyperacute rejection of a renal allograft following transplantation:
A. is rapidly reversible by administration of high dose steroids.
B. cannot be predicted by microlymphocytoxicity cross match.
C. usually occurs between seven to ten days from transplantation.
D. is characterized by initial polyuria for 48-72 hours followed by ongoing oliguria.
E. is mediated by preformed antibodies.
ANSWER=E
Hyperacute rejection is an irreversible event mediated by preformed antibodies usually due to sensitization from prior renal transplantation, blood transfusion, or following pregnancy. It is extremely rare following a negative microlymphocytoxicity cross match and usually occurs immediately following revascularization of the allograft.

38. A 27-year-old spinal cord injured man who performs CIC four times a day has new onset of malodorous urine and suprapubic discomfort. After one week of culture-specific oral antibiotic therapy, his symptoms do not improve. The next step is repeat urine culture and:
A. observation.
B. increase frequency of CIC.
C suprapubic catheterization.
D. abdominal and pelvic CT scan.
E. parenteral aminoglycoside and cephalosporin.
ANSWER=D
Because patients with spinal cord injury often have altered sensation, urinary tract symptomatology during infection is markedly different than those of sensate patients. Symptoms of urinary tract infection in spinal cord injured individuals may include leakage between catheterizations, flank, back or abdominal discomfort, increased spasticity, cloudy, malodorous urine, or lethargy. Urine culture should be obtained prior to antibiotic therapy, as diverse flora and antibiotic resistance is common in urinary infections in spinal cord injured patients. Reculture and adjustment of antibiotic therapy should be undertaken if clinical improvement does not occur within 24 to 48 hours, and a source of infection such as a stone, obstruction or abscess should be investigated with imaging studies.

39. The American Society of Therapeutic Radiology and Oncology (ASTRO) definition of PSA failure following radiation therapy is defined as:
A. any PSA level of > 4.0 ng/ml.
B. one rise in PSA above post-treatment nadir.
C one rise in PSA above post-treatment nadir at one year following treatment.
D. two consecutive rises in PSA above post-treatment nadir.
E. three consecutive rises in PSA above post-treatment nadir.
ANSWER=E
Before 1997, there were various definitions used in the determination of PSA failure following radiation therapy. To standardize reporting, ASTRO convened a panel to develop a standardized definition of PSA success or failure. The consensus statement on PSA after radiation therapy was published in 1997 and adopted within the radiation oncology community to allow uniform reporting of PSA recurrence. The definition defined the point of PSA failure as the time midway between the post-treatment PSA nadir and the first of the three consecutive rises in PSA. This definition is now an accepted standard in both radiation oncology and urology clinical practice.

40. A 28-year-old man underwent right radical orchiectomy for a pure seminoma. CXR and serum tumor markers were negative. Initial abdominal CT scan is shown in the first exhibit. Repeat CT scan immediately after three cycles of PEB chemotherapy is shown in the second exhibit. The next step is:
A. repeat CT scan in three months.
B. bilateral RPLND.
C. salvage chemotherapy.
D. retroperitoneal radiation therapy.
E. excision of the residual mass.



ANSWER=A
A residual mass after appropriate chemotherapy for pure seminoma most often represents resolving necrotic tissue or scar rather than residual malignant elements. If the original mass has shrunk by at least 90% and/or the residual mass is less than 3 cm, initial observation is the best management. In this patient, the mass has shrunk significantly, and repeat imaging is warranted to determine if continued involution occurs.

41. A 50-year-old woman experienced two UTIs over the last year that were effectively treated with antibiotics. She again becomes symptomatic, and a urine culture reveals Proteus mirabilis. After initiating culture-specific antibiotics, the next step is:
A. suppressive antibiotics for three to six months.
B. non-contrast abdominal and pelvic CT scan.
C no intervention if antibiotic treatment is successful.
D. cystoscopy.
E. acetohydroxamic acid.
ANSWER=B
Because of the strong association between Proteus mirabilis and struvite stone formation, the finding of this organism on urine culture should prompt a search for causative or associated urinary tract stones, particularly in highly susceptible individuals such as patients with spinal cord injury, neurogenic bladder or chronic indwelling catheter. Although most low-risk patients diagnosed with Proteus mirabilis cystitis do not have associated struvite stones, the potential morbidity from a missed stone is substantial and warrants radiographic imaging. Non-contrast CT scan is the most sensitive test for detecting urinary calculi.

42. The round ligament:
A. lies in the base of the broad ligament.
B. carries with it the vascular supply of the uterus.
C carries with it the vascular supply of the ovaries.
D. connects to the upper part of the uterus.
E. penetrates the femoral ring to lie within the labia.
ANSWER=D
Each round ligament arises from the top of the side of the uterus and passes anteriorly and laterally towards the deep inguinal ring. The round ligaments run in the upper part of the broad ligament to the uterus while all other ligaments run to the base of the uterus and cervix. The round ligament is encountered during radical cystectomy in the female.

43. A 54-year-old African-American male with metastatic TCC of the bladder complains of penile pain following sexual

relations. Physical examination reveals an indurated right corporal body. Corporal blood gas analysis reveals pH 7.3, pO2 40 mmHg, pCO2 35mmHg. The most likely diagnosis is:
A. ischemic priapism.
B. penile fracture.
C Peyronie's disease.
D. malignant infiltration of corpora cavernosa.
E. non-ischemic priapism.
ANSWER=D
Malignant infiltration of the corpora occurs when erectile tissue is replaced by metastatic cancers most commonly prostate or bladder. It is often painless, but may present with penile pain. It is not a true priapism so blood gas analysis will be normal and the patient does not a have a formal erection. This man s cavernosal blood gas analysis is normal for the flaccid penis and does not support either ischemic or arterial priapism. His metastatic TCC of the bladder makes him at risk for malignant infiltration of the corpora. Men with penile fracture present with a history of instantaneous penile detumescence and massive bruising/hematoma formation on the penis. This blood collection is generally confined to the penis underneath Buck s fascia unless there is also a urethral rupture in which case blood may track outside of the penis. Peyronie's disease is characterized by a tunical scar that does not replace the erectile tissue although it may locally invade cavernosal smooth muscle.

44. A 28-year-old woman has acute left flank pain, nausea, vomiting, and fever. WBC is 17,000 /mm3 .CT scan with and without contrast shows high grade hydronephrosis due to a 20 mm proximal ureteral stone. Urine is sent for culture. The pain has now subsided. The next steps are broad spectrum antibiotics and:
A. discharge home with follow-up appointment.
B. observation.
C stent placement.
D. percutaneous nephrostomy.
E. ureteral stent and SWL within 24 hours.
ANSWER=D
Obstructive pyelonephritis mandates urgent decompression of the collecting system to prevent life-threatening sepsis. Although low grade fever in association with an obstructing stone is not uncommon, high grade fever and/or significant leukocytosis suggests infection and should be treated promptly. The optimal drainage modality for an obstructed, infected collecting system has not been firmly established. However a randomized trial compared percutaneous nephrostomy verus ureteral stent for drainage of an obstructed kidney associated with clinical signs of infection and showed no clinical advantage to one modality over the other with regard to time to normalization of temperature or white blood count or hospital length of stay. However, given the large proximal ureteral stone and high grade obstruction, retrograde stent placement may prove difficult, and in this case placement of a percutaneous nephrostomy tube would likely be the most expedient form of treatment. In addition, the percutaneous access used for drainage could be used for future PCNL. Definitive management of the stone is delayed until the infection is adequately treated with a full course of antimicrobial therapy and a follow-up urine culture is negative.

45. An eight-year-old uncircumcised boy has previously undergone internal urethrotomy of a urethral stricture. The stricture recurs after ten months. Evaluation reveals a 2 cm bulbar stricture. The next step is:
A. staged urethroplasty.
B. pedicle-flap urethroplasty.
C repeat internal urethrotomy.
D. primary excision and end to end anastomosis.
E. urethral dilation followed by CIC
ANSWER=B
A diamond shaped flap of penile skin mobilized on a pedicle through the scrotum as an onlay flap to repair the ventral urethral defect is the preferred treatment of this long bulbar stricture. The flap provides its own blood supply and avoids some of the long-term problems of grafts. In a child of this age a 2 cm gap is too long for an end to end urethroplasty. Repeat internal urethrotomy and urethral dilation will result in stricture recurrence and is not a long-term cure. A vascularized patch flap should have > 90% success in one operation and is preferred over a staged procedure.

46. A 32-year-old woman has a two-year history of hypertension treated with a diuretic. BP is 150/95, sodium 135mEq/l, creatinine 0.8 mg/dl and potassium 2.7mEq/l. The most likely diagnosis is:
A. essential hypertension.
B. aldosteronoma.
C. adrenal hyperplasia.
D. fibromuscular dysplasia.
E. Bartter's syndrome.
ANSWER=A
Primary hyperaldosteronism (Conn's Syndrome) due to adrenal hypersecretion of aldosterone causes hypertension and hypokalemia in non-edematous patients. Conn's syndrome accounts for about 1% of hypertensive patients, usually women between the ages of 30-50 years. Patients typically have hypertension, muscle weakness, polyuria, hypokalemia, and mild metabolic acidosis. However, essential hypertension treated with diuretics is the most common cause of hypokalemia in patients with hypertension. Secondary hyperaldosteronism can be due to renal artery stenosis, cardiac failure, hepatic cirrhosis, pregnancy and Barter's Syndrome (due to juxtaglomerular cell hyperplasia)

47. A 45-year-old otherwise healthy woman has mild left CVA tenderness, bacteruria, and a temperature of 102° F. She is able to take oral fluids. The next step is urine culture and:
A. inpatient I.V. antibiotic therapy.
B. abdominal and pelvic CT scan.
C renal ultrasonography.
D. outpatient therapy with oral nitrofurantoin
E. outpatient therapy with an oral fluoroquinolone.
ANSWER=E
If a patient appearing to have uncomplicated acute pyelonephritis is not so ill that hospitalization is required (most commonly determined by ability to maintain oral hydration), then outpatient therapy with empirical antibiotics is indicated. Although urine culture and sensitivity panel are appropriate to determine the nature of the infection, empirical antimicrobial therapy should be initiated immediately. Fluoroquinolones and TMP-SMX are excellent choices. Nitrofurantoin is effective in urine, but does not obtain therapeutic levels in most body tissues and is not useful for upper tract infections. Upper tract imaging is not required when uncomplicated pyelonephritis is suspected. However, imaging should be considered if the patient does not respond to antibiotic therapy within 48-72 hours, or in the presence of specific indications such as diabetes mellitus, and history of nephrolithiasis or other forms of obstruction.

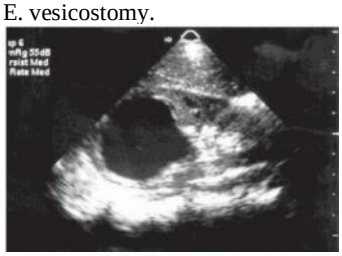
48. A two-year-old boy undergoes a left inguinal exploration for a nonpalpable testis. At the internal ring, the vas deferens is noted to end blindly. The next step is:
A. close.
B. close, then perform transumbilical laparoscopy.
C explore peritoneal cavity.
D. explore the retroperitoneum.
E. close, then obtain a CT scan.
ANSWER=C
Although suggestive of the absence of the testis, the finding of a blind-ending vas deferens is not definitive. Proof comes with exploration for spermatic vessels that is best done with an intraabdominal exploration. Transumbilical laparoscopy would not be practical in this patient since the groin is already open. Laparoscopy using the inguinal incision is possible but not offered here. In this clinical setting, the incision could be extended superiorly and the peritoneal cavity entered at the level of the internal ring. If the testis is absent, the vessels can often be traced to the point of the blind-ending vas. If the testis is present, it will be found higher in the abdominal cavity even though it is truly a retroperitoneal structure.

49. Tyrosine kinase inhibitors are effective in patients with metastatic RCC The function of tyrosine kinases is to:
A. eliminate free radicals.
B. initiate the cell cycle.
C produce new proteins.
D. manipulate the cytoskeleton.
E. phosphorylase intracellular proteins.
ANSWER=E

A number of molecular pathways have been identified for communication of signals from the cell surface to the nucleus. Tyrosine kinases transfer energy within the cell by phosphorylation of proteins. These intracellular signaling pathways are critical for the regulation of the transcription of nuclear DNA.

50. A 12-year-old boy has severe dysuria and hematuria. Ultrasound shows a bladder mass and mild right hydronephrosis. Urine culture is sterile. Cystoscopy shows a diffuse, erythematous, bullous mass at the bladder base. Biopsy shows intense inflammation, granulomatous reactions and an eosinophilic infiltrate. The best management is:
A. laser fulguration.
B. corticosteroids.
C long-term antibiotics.
D. TUR of lesion.
E. cystectomy and diversion.
ANSWER=B
This patient has eosinophilic granulomatous cystitis. It usually presents as a mass-like lesion with irritative symptoms and hematuria. It may be mistaken for a neoplastic process, but is benign and self-limited. If the lesion is focal with minimal symptomatology, observation is appropriate. Patients with focal lesions may also be managed with laser fulguration or TUR. In diffuse lesions, resection is not indicated. Both antihistamines and steroids may aid in relieving symptomatology, steroids have been reported to relieve symptoms faster although direct statistical comparisons are not available. Unless infection is also present, there is no need to treat with antibiotics. The process is non-specific and consideration for a causative condition is necessary; e.g. schistosomiasis in a patient at risk.

51. A four-month-old girl has acute pyelonephritis. She remains febrile after four days of I.V. antibiotics. An ultrasound of the right kidney and VCUG are shown in the exhibits. The next step is:
A. bladder biopsy.
B. partial nephrectomy.
C. endoscopic incision.
D. ureteroneocystostomy.
E. vesicostomy.



ANSWER=C
The patient has a complete duplication with the upper pole of the right kidney obstructed by a ureterocele. Given the young age of the child and the pyelonephritis, endoscopic incision would provide rapid decompression of the kidneys with little morbidity. There is a potential for reflux into the upper pole segment, but this can be managed electively when the patient is older. Upper pole nephrectomy is a consideration, but the function of the upper segment has not been evaluated. Ureteral reimplantation is not advisable due to the dilated ureters and small size of the child. Vesicostomy would not improve drainage of the obstructed upper pole moiety. With upper pole hydronephrosis and a classic filling defect consistent with a ureterocele a bladder tumor is unlikely and therefore a bladder biopsy is not indicated.

52. Compared to other antihypertensive medications, doxazosin when administered to men with hypertension and cardiac risk factors for the treatment of both hypertension and LUTS was associated with a higher risk of:
A. myocardial infarction.
B. congestive heart failure.
C erectile dysfunction.
D. dizziness.
E. ejaculatory dysfunction.
ANSWER=B
Doxazosin monotherapy was associated with a higher risk of congestive heart failure in this population. Based upon these findings, use of an alpha-blocker to treat LUTS should not be assumed to constitute optimal management of concomitant hypertension. In these cases patients may require additional medication to optimally treat the hypertension and minimize the risk of cardiac disease. Interestingly, erectile and ejaculatory dysfunction was not higher in the doxazosin group. Major cardiovascular events in hypertensive patients randomized to doxazosin vs. chlorthalidone: The antihypertensive and lipid-lowering treatment to prevent heart attack trial (ALLHAT) Collaborative Research Group.

53. A 50-year-old woman has right flank pain and hematuria. CT urogram shows a ureteral filling defect. She undergoes ureteroscopic removal of a fibroepithelial polyp. The next step is:
A. follow-up ureteroscopy in three months.
B. follow-up imaging.
C urine cytology.
D. partial ureterectomy.
E. radical nephroureterectomy.
ANSWER=B
Fibroepithelial polyps are benign. The usual presentation is hematuria and ureteral obstruction. Endoscopic resection must be complete to prevent recurrence. Follow-up radiographic imaging should be undertaken to assure complete resection and absence of stricture.

54. The renal cystic condition that arises prior to formation of the nephron is:
A. autosomal recessive polycystic kidney disease.
B. autosomal dominant polycystic kidney disease.
C medullary sponge kidney.
D. multicystic kidney disease.
E. juvenile nephronophthisis.
ANSWER=D
Most renal cystic conditions, whether congenital, acquired or sporadic arise from the nephrons and collecting ducts after they have formed. Multicystic dysplasia is an exception in that it arises prior to formation of the nephron. Autosomal polycystic kidney disease occurs during the formation of the nephron.

55. Cystoscopy during a mid-urethral polypropylene sling procedure reveals the trocar entering and exiting the bladder along the right anterior bladder wall. Following removal of the trocar and bladder drainage, the next step is:
A. abort procedure and perform transabdominal bladder closure.
B. abort procedure and perform transvaginal bladder closure.
C abort procedure and place suprapubic cystostomy tube.
D. Burch colposuspension
E. reinsert mid-urethral polypropylene sling trocar.
ANSWER=E
Inadvertent cystotomy from a trocar during mid-urethral polypropylene sling surgery is not uncommon. These puncture holes are quite small and generally heal without complication if the bladder is adequately drained postoperatively for several days. Open surgical repair in the acute setting is not necessary and the location of these injuries makes it a technically demanding undertaking from either a transabdominal or transvaginal approach. In general, reinsertion of the trocar and placement of the mid-urethral sling material is safe even in the setting of a concomitant trocar injury. A Burch colosuspension would require a second incision (abdominal) and result in a greater risk for voiding dysfunction than the mid-urethral sling.

56. A 38-year-old-woman has moderate right flank pain. CT scan shows delayed filling of a right upper pole anterior calyceal diverticulum containing an 8 mm stone. The diverticular neck is not well-visualized. The best treatment option is:
A. observation.
B. SWL.
C ureteroscopy, incision of the diverticular neck and laser lithotripsy.
D. percutaneous nephrostolithotomy and dilation of the infundibular neck.
E. laparoscopic ablation of calyceal diverticulum and stone removal.
ANSWER=C
Observation is unacceptable in this symptomatic patient. Although SWL may be used successfully to treat a subset of patients with stones in calyceal diverticula that have a broad infundibular neck, the overall stone free rates with SWL are unacceptably low. Percutaneous nephrostolithotomy is not only associated with the highest stone-free rate, but also the procedure results in resolution of the diverticulum. However, anteriorly-located diverticula necessitate percutaneous access through the renal parenchyma with a high risk of bleeding complications. The ureteroscopic approach is ideal for upper pole calyceal diverticula with < 2 cm stones.

57. How many micrograms per ml are contained in a solution of 1:100,000 epinephrine:
A. 0.1.
B. 1.0.
C. 2.5.
D. 5.
E. 10.
ANSWER=E
The figure 1:100,000 means 1 gram per 100,000 ml. One gram equals 1000 milligrams or 1,000,000 micrograms. Therefore, this solution consists of 1 million micrograms per 100,000 ml which is 10 micrograms per ml. The answer can be found quickly by dividing 1 million by the solution strength (100,000) to get the number of micrograms per ml.

58. Stimulation of T cells by dendritic cells:
A. is restricted to the Class I MHC (major histocompatibility complex).
B. causes T cell differentiation into plasma cells.
C is suppressed by TNF (tumor necrosis factor).
D. is augmented by blockade of the T cell receptor.
E. produces interleukins.
ANSWER=E
An integral part of the immune response involves the activation of T cells by dendritic or antigen presenting cells. This interaction occurs via the T cell receptor in the context of MHC (major histocompatibility complex). B cells, unlike T cells, can be directly stimulated by antigen, which then allows B cell differentiation into antibody producing plasma cells. TNF (tumor necrosis factor) and other cytokines are produced by activated T cells and augment the cellular and humoral immune response. Dendritic cell therapies are being evaluated in the treatment of a number of urologic malignancies.

59. A patient elects SWL for treatment of a symptomatic, partially obstructing radiopaque 7 mm proximal ureteral calculus. Optimal treatment is:
A. push back of the stone into the renal pelvis prior to SWL.
B. placement of a stent along side the stone prior to SWL.
O placement of a nephrostomy tube prior to SWL.
D. in situ SWL treatment.
E. placement of a ureteral catheter to the level of the stone.
ANSWER=D
Although it was initially thought that SWL was more successful after manipulation of ureteral stones into the kidney or placement of a stent alongside the stone to produce an "expansion chamber" that facilitates SWL fragmentation, subsequent studies showed no difference in stone free rates in patients treated with or without stone or stent manipulation. Indeed, the AUA Nephrolithiasis Ureteral Stones Clinical Guidelines Panel concluded that there is no advantage to placement of a ureteral stent for proximal ureteral stones with regard to stone free rates.

60. A 12-year-old prepubertal boy has severe right scrotal pain one day after being kicked in the groin. There is a blue area over the superior portion of the testis, but the examination is difficult due to a hydrocele. Urinalysis is normal. The next step is:
A. immediate exploration.
B. scrotal ultrasound with Doppler.
C scrotal nuclear scan.
D. manual detorsion and delayed fixation.
E. observation, anti-inflammatory medications.
ANSWER=B
A history of trauma is common in a patient with an acute scrotum. Although a testicular rupture is possible, a more likely possibility in a prepubertal boy is torsion of a testicular appendage with a blue-dot sign. Because the examination is difficult, an ultrasound is most appropriate. Scrotal nuclear scan does not provide enough anatomic detail. The hydrocele makes adequate physical exam and potential detorsion impossible. The threat of torsion or testicular rupture makes observation inappropriate.

61. A 36-year-old man develops recurrent renal calculi. He has normal serum BUN, creatinine, and calcium levels. He is asked to collect a 24-hour urine specimen for chemical analysis. The finding most likely to indicate whether or not the collection is complete is:
A. volume.
B. creatinine content.
O calcium sodium ratio.
D. calcium creatinine ratio.
E. normal glomerular filtration rate.
ANSWER=B
Normal daily creatinine excretion should be 18-20 mg/kg lean body weight in women, and 20¬ 22 mg/kg lean body weight in men. If the urine creatinine content is considerably lower than the calculated amount, an incomplete collection is likely. This same index can be used to determine over-collection.

62. A urologist sustains a needle stick injury while operating on an HIV positive individual. HIV antibody testing of the urologist should continue for:
A. six weeks.
B. three months.
C. six months.
D. nine months.
E. one year.
ANSWER=C
The Centers for Disease Control and Prevention and the Public Health Service recommend follow-up HIV-testing for six months after occupational exposure, regardless of whether the exposed individual received postexposure prophylaxis or not. Most infected individuals seroconvert within 6-12 weeks of exposure. HIV-antibody testing is recommended at 6 weeks, 12 weeks and 6 months using the enzyme immuno assay (EIA) test rather than the HIV p24 antigen EIA or HIV RNA assays. HIV testing should be performed on any healthcare worker who presents with an illness compatible with an acute retroviral syndrome, regardless of the time interval since exposure.

63. A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis on a freshly voided urine specimen collected three hours later reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal ultrasound is normal. The next step is:
A. cystoscopy.
B. CT urogram.
C urinary myoglobin.
D. urinary calcium/creatinine ratio.
E. urinalysis 72 hours later.
ANSWER=E
Hematuria after prolonged strenuous exercise, is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. Hypercalciuria is not related to exercise, and therefore the urinary calcium/creatinine ratio will be normal. The urinalysis in this benign condition is generally

normal 48-72 hours after the exercise. Myoglobinuria is characteristically brown without RBCs.

64. The symptom complex of orthostatic hypotension, anhidrosis, detrusor overactivity, denervation of the external sphincter, and a bladder neck that is open at rest best describes patients with:
A. autonomic dysreflexia.
B. diabetic neuropathy.
C multiple sclerosis.
D. multiple system atrophy (Shy-Drager syndrome).
E. Parkinson's disease.
ANSWER=D
The symptom complex described above describes the multiple system atrophy (Shy-Drager syndrome). This degenerative disorder results in atrophy of areas in the cerebellum, brain stem, peripheral autonomic ganglia, and thoracolumbar preganglionic sympathetic neurons. Patients with multiple system atrophy usually have Parkinsonian symptoms coupled with orthostatic hypotension and anhidrosis. Because of disruption of the sympathetic innervation to the lower urinary tract, the bladder neck is open at rest. None of the other answers fit with the symptom complex described.

65. A 46-year-old woman with a history of nephrolithiasis undergoes a radical hysterectomy and sustains a left ureteral injury. Preoperative serum creatinine is 0.9 mg/dl. Intraoperative urologic consultation reveals that the distal 9 cm of the left ureter is devascularized. The next step is:
A. nephrectomy.
B. ileal interposition.
C autotransplantation.
D. transureteroureterostomy.
E. psoas hitch with a Boari flap.
ANSWER=E
Ureteral injury occurs in 0.5-1.5% of patients undergoing abdominal hysterectomy and up to 2.2% undergoing radical hysterectomy. Other causes of iatrogenic ureteral injury include penetrating trauma, laparoscopic gynecologic procedures, colorectal surgery (especially abdomino-perineal resection), vascular surgery, and urologic procedures. Keys to management are early recognition, adequate debridement, tension-free spatulated anastomosis and omental wrapping. Short, distal ureteral defects (< 5 cm) can be managed by ureteroneocystostomy, larger defects (6-8 cm) by psoas hitch reimplantation and very large defects (12-15 cm) by use of a Boari flap. Transureteroureterostomy is contraindicated in patients with nephrolithiasis. If a Boari flap is not technically possible, an ileal interposition or autotransplantation are considerations.

66. If the inferior mesenteric artery is ligated, which of the following arteries maintains blood supply to the rectum:
A. superior mesenteric.
B. ileocolic.
C middle sacral.
D. external iliac.
E. hypogastric.
ANSWER=E
Ureteral injury occurs in 0.5-1.5% of patients undergoing abdominal hysterectomy and up to 2.2% undergoing radical hysterectomy. Other causes of iatrogenic ureteral injury include penetrating trauma, laparoscopic gynecologic procedures, colorectal surgery (especially abdomino-perineal resection), vascular surgery, and urologic procedures. Keys to management are early recognition, adequate debridement, tension-free spatulated anastomosis and omental wrapping. Short, distal ureteral defects (< 5 cm) can be managed by ureteroneocystostomy, larger defects (6-8 cm) by psoas hitch reimplantation and very large defects (12-15 cm) by use of a Boari flap. Transureteroureterostomy is contraindicated in patients with nephrolithiasis. If a Boari flap is not technically possible, an ileal interposition or autotransplantation are considerations.

67. A 54-year-old man with hypertension and a creatinine of 1.7 mg/dl is started on an angiotensin converting enzyme inhibitor. After two weeks, the creatinine is unchanged, but hypertension persists and a diuretic is added. Four days later, the creatinine is 2.5 mg/dl. The best next test for evaluation of renal insufficiency is:
A. peripheral renin measurement.
B. renal vein renin measurements.
C. MR angiography.
D. captopril stimulated peripheral renin.
E. captopril renography.
ANSWER=C
In patients with bilateral renal artery disease, hypertension is largely volume dependent. This serves to protect renal function. When diuretics cause volume depletion, renal function becomes angiotensin dependent and with exposure to converting enzyme inhibitors results in renal insufficiency. This scheme has been suggested as a provocative test to identify patients with ischemic nephropathy. Angiography is appropriate in these patients. Captopril renography is less accurate in renal insufficiency. Renin based testing is mainly utilized for evaluation of renovascular hypertension and not ischemic nephropathy. The clinical scenario, as described, is tantamount to a provocative test. No further functional testing is required, only anatomical assessment of the renal artery is needed.

68. During gated SWL, shock wave generation is triggered by:
A. P wave.
B. heart rate.
C. QRS complex.
D. ST interval.
E. T wave.
ANSWER=C
In order to decrease the likelihood of cardiac arrhythmias, the shock wave is triggered by the "R" deflection of the QRS complex. Nonsynchronized SWL treatment may induce arrhythmias, most likely premature ventricular contractions, in 18%-20% of patients. No relationship between the induction of arrhythmias and gender, age, presence of heart disease, stone size, or stone location has been noted. Non-gated SWL requires less time and analgesia. For the patient who develops a cardiac arrhythmia during ungated SWL, conversion to gated SWL is recommended.

69. A 30-year-old manic depressive man is seen for evaluation of polyuria (12 liters/24 hr). The serum osmolality is 270mOsm/l and the urine osmolality is 140mOsm/l. The most likely cause is:
A. nephrogenic diabetes insipidus.
B. central diabetes insipidus.
C. psychogenic polydipsia.
D. lithium therapy.
E. diabetes mellitus.
ANSWER=C
The most likely cause of this man's polyuria is psychogenic polydipsia because the plasma osmolality is less than normal and the urinary osmolality is appropriately low for this condition. Patients with neurogenic diabetes insipidus usually have plasma osmolality in the high normal range. Nephrogenic diabetes insipidus is also associated with plasma osmolalities in the high/normal range. Lithium is used to treat bi-polar (manic depressive) disorders and can induce nephrogenic diabetes insipidus. Patients with diabetes mellitus have an osmotic diuresis and the urine osmolality is generally hypertonic.

70. The onset of hypertension occasionally seen in acute unilateral ureteral obstruction is primarily due to:
A. increased sodium absorption.
B. decreased sodium absorption.
C. nephron loss.
D. decreased renal blood flow.
E. volume expansion.
ANSWER=D
Acute ureteral obstruction results in decreased renal blood flow due to preglomerular vasoconstriction with a resulting decreased filtered solute load, increased proximal tubular sodium absorption, and decreased sodium delivery to the distal tubule and macula densa. This results in increased renin release from the juxtaglomerular apparatus and may cause reninmediated hypertension. Decreased sodium absorption does not occur and volume expansion would only be a problem in the setting of bilateral obstruction or obstruction of a solitary kidney. Nephron loss would only occur with more prolonged obstruction. Sodium retention and/or volume expansion may cause hypertension with chronic bilateral obstruction.

71. A 27-year-old woman in the seventh week of pregnancy has right flank pain. Ultrasonography demonstrates a 5 mm

calculus at the right UPJ. Urine culture is negative. The next step is:
A. hydration and analgesics.
B. stone protocol CT scan.
C ureteral stent.
D. percutaneous nephrostomy.
E. SWL.
ANSWER=A
Between 60% and 80% of women with ureteral colic will spontaneously pass their calculi with hydration and analgesic therapy. If the calculus fails to pass with conservative therapy, a ureteral stent should be placed cystoscopically with sonography or minimal radiographic imaging, as the first trimester presents the period of greatest risk of teratogenicity and spontaneous abortion. Fluoroscopy should be avoided. Pregnancy is an absolute contraindication for the use of SWL.

72. A six-week-old boy has a large, palpable, right abdominal mass. Ultrasonography demonstrates a fluid-filled mass with multiple cystic lucencies. A renal scan shows no uptake of the right kidney and a normal left kidney. He has moderate respiratory distress and an elevated right hemidiaphragm. The most appropriate therapy is:
A. right nephrectomy.
B. percutaneous aspiration of cysts.
C. cystoscopy and right retrograde pyelogram.
D. right pyeloplasty.
E. observation.
ANSWER=A
The diagnostic findings on ultrasound and renal scan are sufficient to confirm multicystic dysplastic kidney. The absolute indications for removal are few, including hypertension, solid mass, or significant respiratory or gastrointestinal compromise. Aspiration is an option in a premature neonate or a toxic child, but at six weeks of age, nephrectomy is preferred. The lack of renal function eliminates a salvageable UPJ obstruction. Therefore cystoscopy and retrograde pyelogram is unnecessary, and pyeloplasty is not an option.

73. A 32-year-old woman undergoes urodynamic testing two weeks following a complete C6 spinal cord injury. Prior to her accident she had stress incontinence. She has had an indwelling catheter since her accident. The expected urodynamic finding is:
A. detrusor hypocontractility.
B. detrusor overactivity with external sphincter synergy.
C. detrusor overactivity with external sphincter dyssynergy.
D. poor bladder compliance.
E. normal bladder function during filling and stress incontinence.
ANSWER=A
Following spinal cord injury patients develop spinal shock that lasts approximately four weeks. During spinal shock, the detrusor is hypocontractile. In patients with complete high spinal cord injury the long term urodynamic manifestation is most commonly neurogenic detrusor overactivity with detrusor-sphincter dyssynergia. Stress incontinence would not be demonstrable during urodynamics since the patient would be unable to increase her abdominal pressure.

74. A 36-year-old woman with a horseshoe kidney has a symptomatic 1.8 cm left lower calyceal stone. The next step is:
A. SWL.
B. open nephrolithotomy.
C. ureteroscopic stone extraction.
D. ureteral stent and SWL.
E. percutaneous nephrolithotomy.
ANSWER=E
Symptomatic lower calyceal stones clear poorly after fragmentation with SWL, especially in horseshoe kidneys. Ureteroscopic fragmentation and stone extraction in these malrotated kidneys can be difficult. Residual stone fragments are unlikely to pass spontaneously and the likelihood of rendering the patient stone free is limited. Percutaneous renal access can be performed safely through a superior and posterior calyceal puncture. The entry site of the puncture needle is more medial, just lateral to the paraspinous musculature, in comparison to inferior pole punctures in normally positioned kidneys. An inferior calyceal puncture in a horseshoe kidney could be dangerous due to its medial, more anterior and inferior location. Even in thin patients one may need to utilize longer instruments including flexible cystoscopes, flexible or rigid ureteroscopes, or extra-long nephroscopes. Percutaneous renal access through a superior pole puncture can be performed in a safe fashion and is the most optimal route to render the patient stone free.

75. Thiazide diuretics are:
A. useful in treating hypercalcemia.
B. contraindicated in calcium nephrolithiasis.
C. specifically indicated in idiopathic hypercalciuria.
D. inhibitors of sodium and chloride reabsorption in the collecting duct.
E. able to increase both renal blood flow and GFR.
ANSWER=C
Thiazide diuretics are able to diminish blood volume acutely by inhibiting sodium and chloride reabsorption at the distal convoluted tubule and thus diminish both renal blood flow and glomerular filtration rate. Thiazide diuretics are indicated in patients with calcium nephrolithiasis because they decrease urinary calcium by promoting calcium reabsorption in the distal tubule. In nephrogenic and partial pituitary diabetes insipidus, thiazides produce an antidiuresis due to the sodium-depleting effects, causing a contraction of the extracellular fluid volume with less delivery of filtrate to the distal nephron. Furosemide, not thiazides, is useful in treating hypercalcemia.

76. A 30-year-old woman with slowly progressive multiple sclerosis has urinary frequency, urgency, and incontinence. PVR is 800 ml. Three months after starting CIC, she complains of recurrent incontinence associated with an acute exacerbation of her multiple sclerosis requiring steroids. The incontinence is most likely due to:
A. non-compliance with catheterization.
B. detrusor-sphincter dyssynergia.
C neurogenic detrusor overactivity.
D. overflow incontinence.
E. idiopathic detrusor overactivity.
ANSWER=C
Approximately one-third of patients with multiple sclerosis who are in retention go on to develop neurogenic detrusor overactivity and require anticholinergic agents. Urinary symptoms and urodynamic findings often change as the disease progresses and, for this reason, these patients must be carefully followed with the knowledge that therapy may need to be altered. According to the International Continence Society, detrusor overactivity is now classified as neurogenic or idiopathic, replacing the old terms of detrusor hyperreflexia and instability.

77. A 37-year-old woman with von Hippel-Lindau disease has a 4 cm upper pole renal cell carcinoma. Imaging studies demonstrate a small thrombus in the upper pole renal vein. Metastatic evaluation and the contralateral kidney are normal. The preferred management is:
A. tumor angioinfarction and partial nephrectomy.
B. cryoablation.
C. in situ partial nephrectomy and thrombectomy.
D. radical nephrectomy.
E. ex vivo partial nephrectomy and autotransplant.
ANSWER=C
This patient is at high risk for subsequent development of renal cell carcinoma in the contralateral kidney and thus renal-preserving management is desirable. Partial nephrectomy and thrombectomy has been demonstrated to be effective in such a patient and can be done safely and successfully using an in situ approach. While infarction will occasionally lead to regression of the thrombus, the extent of this thrombus is manageable without infarction and avoidance of possible complications of infarction is desirable.

78. An 11-year-old boy with spina bifida is scheduled for bladder augmentation and implantation of an artificial urinary sphincter. Infection or erosion are more common if sphincter implantation is performed:
A. prior to bladder augmentation.
B. following bladder augmentation.
C. simultaneous with augmentation.
D. with sigmoid enterocystoplasty.
E. in an area of previous surgery.
ANSWER=C

This patient is at high risk for subsequent development of renal cell carcinoma in the contralateral kidney and thus renal-preserving management is desirable. Partial nephrectomy and thrombectomy has been demonstrated to be effective in such a patient and can be done safely and successfully using an in situ approach. While infarction will occasionally lead to regression of the thrombus, the extent of this thrombus is manageable without infarction and avoidance of possible complications of infarction is desirable.

79. A 55-year-old man with post-prostatectomy incontinence underwent placement of an artificial urinary sphincter with good results for 18 months. He now complains of recurrent incontinence. Examination of the device, and x-rays show normal sphincter cycling. Cystoscopy reveals no cuff erosion. The next step is:
A. surgical exploration for repair or replacement.
B. deactivate device for a two month trial period.
C urodynamics.
D. alpha-blocker.
E. anticholinergic medication.
ANSWER=C
Tissue atrophy is the leading cause of recurrence in this scenario. However, urodynamic evaluation may reveal involuntary detrusor contractions or decreased bladder compliance. Deactivation will not permit improved sphincter function. Surgical exploration is not indicated if the cause of the incontinence is unrelated to the device (detrusor overactivity or impaired compliance). Alpha-blockers would not be expected to have any effect on urinary incontinence in this case regardless of the underlying cause. Anticholinergics would not treat causes of incontinence related to device malfunction.

80. The predominant subtype of human papillomavirus (HPV) associated with squamous cell carcinoma of the penis is:
A. HPV-30.
B. HPV-11.
C HPV-6.
D. HPV-16.
E. HPV-18.
ANSWER=D
Human papillomavirus (HPV) is associated with both benign and malignant lesions of the penis. More than 65 types of HPV have been identified. The HPVs that infect the anogenital area can be separated into two distinct groups on the basis of their association with recognized clinical entities. In an examination of 30 specimens of penile cancer from 23 patients by PCR and ISH assays, the HPV-16 genome was found in 65%, HPV-30 in 13%, and HPV-6 or HPV-11 in 9%. Another study by Sarkar and associates detected HPV-16 in 9/11 invasive squamous cell carcinomas and all seven of the Bowenoid forms of carcinoma in situ.

81. In a patient with an absent right kidney and a left pelvic kidney, the right adrenal is:
A. absent and the left is adjacent to the upper pole of the kidney.
B. absent and the left is in the normal anatomic position.
C. in the normal anatomic position and the left is adjacent to the upper pole of the kidney.
D. in the normal anatomic position and the left is in the normal anatomic position.
E. in the normal anatomic position and the left is absent.
ANSWER=D
The adrenal gland is in the normal anatomic position, no matter whether the kidney is absent or ectopic. The embryologic development of each of these structures is distinct.

82. Size and function of the involved kidney are best preserved in:
A. atherosclerosis.
B. medial fibroplasia.
C. intimal fibroplasia.
D. Takayasu's arteritis.
E. perimedial fibroplasia.
ANSWER=B
Medial fibroplasia of the renal artery rarely progresses to complete occlusion and it is unusual for patients to experience progressive loss of renal function. All of the other listed forms of renal artery disease carry a significant risk of progression to complete occlusion with loss of renal function. Medial fibroplasia resulting in renovascular hypertension may be successfully treated with endovascular techniques.

83. A 65-year-old man has diffuse CIS of the bladder. Transurethral prostatic biopsy and CT urogram are normal. Intravesical BCG results in temporary severe dysuria, frequency, and suprapubic pain despite isoniazid prophylaxis and anticholinergic medication. The next step is:
A. premedicate with prednisone; continue BCG.
B. mitomycin C
C premedicate with rifampin; continue BCG.
D. doxorubicin.
E. radical cystoprostatectomy.
ANSWER=B
An occasional patient cannot tolerate BCG due to significant local symptoms. While BCG in Phase III randomized trials appears to be the best agent for CIS, responses are seen with other agents (such as mitomycin C) that may have less toxicity. In a randomized clinical trial, mitomycin C was shown to be more effective than doxorubicin in the treatment of CIS. Reducing the dose of BCG does not seem to reduce toxicity and cystoprostatectomy should be reserved for the patient who has undergone at least one intravesical treatment cycle of chemotherapy.

84. A six-year-old girl has a one week history of marked urinary frequency and urgency. Physical exam is normal and her urinalysis and culture are normal. The next step should be:
A. renal/bladder ultrasound.
B. CMG.
C CBC with eosinophil count.
D. VCUG.
E. observation.
ANSWER=E
This is a common scenario in pediatric urology. Work-up of this problem should be minimal. Spontaneous improvement is likely. Renal bladder sonogram is non-invasive but not yet indicated. If the symptoms persist for more than four weeks, a renal/bladder ultrasound should be performed. VCUG is reserved for patients with UTI or clinical evidence of bladder outlet obstruction. CMG is not indicated without other clinical findings such as signs and symptoms of a neurogenic bladder. CBC and eosinophil count is useful in the work-up of parasites but not in this condition.

85. 5-alpha-reductase deficiency is associated with:
A. poorly differentiated Wolffian structures.
B. poorly differentiated Mullerian structures.
C gynecomastia.
D. elevated concentration of testosterone at puberty.
E. elevated dihydrotestosterone:testosterone ratio.
ANSWER=D
The defective conversion of testosterone to dihydrotestosterone produces a unique form of male pseudohermaphroditism. At birth, the Mullerian structures are absent and testosteronedependent Wolffian structures are well differentiated. The 5-alpha-reductase enzyme defect is generally incomplete, and at puberty the plasma concentration of dihydrotestosterone, while low, is detectable. Plasma testosterone and LH are elevated while the dihydrotestosterone/testosterone ratio is abnormally low. 5-alpha-reductase deficiency is inherited as an autosomal recessive trait, and the enzymatic defect exhibits genetic heterogeneity.

86. A 40-year-old woman has a pelvic abscess secondary to perforated sigmoid diverticulitis. The abscess is drained and a colostomy is performed. Subsequently, the sigmoid is resected and the colostomy is closed. One year later she undergoes excision of a large serous cyst of the left ovary. On the third postoperative day, urine begins to drain from the Penrose drain site. The surgical specimen is reported to include a 5 cm segment of ureter. An IVP shows a normal right kidney and ureter. The left collecting system reveals slight hydronephrosis and hydroureter down to L-5. The most appropriate treatment is:
A. left nephrectomy.
B. transureteroureterostomy.
C. interposition of an ileal segment.
D. ureteroureterostomy.
E. autotransplantation of the left kidney to the right pelvis.
ANSWER=B

Because of extensive damage to the tissues of the left side of the pelvis from the recent and prior disease processes, a ureteroureterostomy or interposition of an ileal segment would be very difficult and apt to fail. Because the left kidney functions well and the patient is only 40 years old, nephrectomy is inappropriate. Autotransplantation to the right side of the pelvis is a possibility but is a formidable procedure and should be reserved for situations where there are no other reasonable options. The remaining left ureter has sufficient length and is far enough removed from the damaged tissues to permit a satisfactory transureteroureterostomy.

87. A four-month-old boy undergoes left radical orchiectomy for a testicular mass. Pathology reveals a yolk sac tumor confined to the testis. CT scans of the chest and abdomen are negative. Preoperative serum AFP was 500 ng/ml. Two months later, serum AFP is 25 ng/ml. The next step is:
A. modified RPLND.
B. combination chemotherapy.
C scrotal ultrasound.
D. surveillance.
E. retroperitoneal lymph node sampling.
ANSWER=D
Alpha-fetoprotein (AFP) is a single chain glycoprotein produced by the fetal yolk sac, liver and gastrointestinal tract. Various benign and malignant conditions can produce elevations of AFP, including yolk sac tumors of the testis. AFP has a half-life of five days and degradation curves can be followed after orchiectomy to assess for residual disease. The age of the child must be considered when monitoring serum levels of AFP. Reference normal values for infants have now been established. Normal adult levels (< 10 ng/ml) are not reached until eight months of age. The mild elevation of the serum AFP in this young infant should be followed by serial levels.

88. Sperm capacitation is induced by:
A. prostatic fluid.
B. epididymal enzymes.
O follicular fluid.
D. seminal vesicle fluid.
E. acrosin.
ANSWER=C
Spermatozoa must undergo some physiologic changes in the female genital tract before they gain the ability to fertilize ova. Although poorly characterized, this process, termed capacitation, is thought to be related to changes in the sperm plasma membrane. Capacitation precedes the acrosome reaction and the release of acrosin. It can be induced in vitro by removal of the sperm from the seminal plasma, which inhibits capacitation, and by incubating the sperm with follicular fluid. Epididymal enzymes are not thought to play a role.

89. A 48-year-old male undergoes partial nephrectomy for a 3 cm renal mass. His flank drain is removed on the third postoperative day. Seven days later he has clear fluid dripping from the flank drain site. He is otherwise asymptomatic. CT scan demonstrates a 5 cm by 10 cm fluid collection adjacent to the kidney with extravasation of contrast from the collecting system. The next step is:
A. observation.
B. urethral catheter.
O percutaneous drainage of fluid collection.
D. percutaneous nephrostomy.
E. ureteral stent.
ANSWER=C
Urine leak following partial nephrectomy occurs in up to 15% of cases with collecting system injury. In most cases, spontaneous closure of the leak occurs within two to four weeks postoperatively provided it is well-drained. As the fistula tract matures around the drain, it is slowly advanced out allowing the tract to collapse. In the case of an unrecognized leak, the presence of an adjacent urinoma will prevent fistula closure and likely predispose the patient to ultimate infection/abscess formation. Percutaneous drainage of an uncomplicated urinoma will likely create a controlled pyelocutaneous fistula, thereby allowing spontaneous closure. If the leak does not heal with drainage of the perinephric space, consideration should be given to the possibility of ureteral obstruction due to blood clot or ureteral stricture. Even if such factors are not identified, renal drainage through retrograde stent placement or percutaneous renal access will likely aid in closure of the leak. If a stent is placed, a concomitant urethral catheter will prevent reflux into the kidney.

90. The appropriate maintenance I.V. fluid for a 14 kg child is:
A. 25ml/hrof 1/2 NS.
B. 50ml/hrof 1/4 NS.
C. 50 ml/hr of NS.
D. 75 ml/hr of 1/4 NS.
E. 75 ml/hr of 1/2 NS.
ANSWER=B
Maintenance fluids are based on body weight. One formula is: 100 ml/kg for the first 10 kg and 50 ml/kg for the second 10 kg, then 20 ml/kg for the remainder. Hence, for a 14 kg child, 1200 ml/day is appropriate (or 50 ml/hr). The normal kidney can reabsorb sodium well, so 1/4 NS is sufficient.

91. A 32-year-old man with glomerulonephritis needs a kidney transplant. The probability of a sibling being an HLA identical match is:
A. 0%.
B. 10%.
C. 25%.
D. 50%.
E. 75%.
ANSWER=C
The HLA antigens of one chromosome are termed a haplotype. Each person has two haplotypes, one haplotype inherited from each parent. Therefore, there is a 25% chance of each sibling inheriting the exact same haplotypes (HLA- identical), a 50% chance of inheriting at least one common haplotype (haploidentical), and a 25% chance of a complete HLA mismatch.

92. The ileal orthotopic neobladder is contraindicated in patients with:
A. a solitary kidney.
B. regional ileitis.
C. prior pelvic radiotherapy.
D. prior sigmoidectomy.
E. hydronephrosis.
ANSWER=B
Regional ileitis is an absolute contraindication to the use of ileum for creation of an ileal orthotopic neobladder. This form of diversion may be used in the other situations listed, assuming that renal function is sufficient to prevent the development of acidosis and that no radiation damage is apparent in the segment of bowel used to construct the urinary diversion. In patients with a solitary kidney and/or hydronephrosis with normal renal function can undergo an ileal orthotopic neobladder.

93. A 38-year-old woman with extensive prior pelvic radiation has a long left distal ureteral stricture. At the time of psoas hitch and ureteral reimplant, an omental wrap is planned. The vascular supply of the omentum is most reliably based upon which artery:
A. splenic.
B. gastroduodenal.
C. right gastroepiploic.
D. short gastric.
E. left gastroepiploic.
ANSWER=C
The blood supply of the omentum arises from the gastroepiploic arteries. The right gastroepiploic is best chosen for development of the wrap as the left is relatively small and more variable in its anatomy.

94. The best treatment to decrease total body potassium in a patient with acute renal failure and a serum potassium of 6.7mEq/l is:
A. insulin and glucose.
B. bicarbonate.
C. calcium gluconate.
D. normal saline.
E. sodium polystyrene sulfonate (Kayexalate).
ANSWER=E
Hyperkalemia is a common electrolyte disturbance observed in acute renal failure. Parenteral insulin/glucose and bicarbonate will shift potassium into cells and temporarily correct hyperkalemia but does not decrease total body potassium. Calcium ameliorates the

effect of hyperkalemia on the cardiac electrical potential. Sodium polystyrene sulfonate (Kayexalate) is a potassium binding resin that removes potassium from the body. It can be given orally or as an enema but may take several hours to work. It should not be administered to patients with an ileus due to a risk of bowel ischemia and perforation.

95. A 50-year-old woman has irritative and obstructive voiding symptoms and urge incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6ml/sec, peak detrusor voiding pressure of 45 cm H2O, residual urine of 150 ml, a silent external sphincter, minimal opening of the bladder neck during voiding, and no cystocele. Cystoscopy is normal. The next step is:
A. anticholinergic therapy.
B. biofeedback.
C urethral dilation.
D. alpha-blocker therapy.
E. transurethral incision of bladder neck.
ANSWER=D
This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy. The urodynamic test showing a high pressure void of 45 cm H20 coupled with increased PVR is most consistent with bladder outlet obstruction. A common cause of bladder outlet obstruction in females is prior anti-stress incontinence surgery such as a sling. Another cause of bladder outlet obstruction is an increased tone of the striated muscle pelvic floor (including external urethral sphincter). Given that this patient has not had previous anti-incontinence surgery and that the external sphincter is silent and the bladder neck minimally opens during voiding, the level of obstruction is at the bladder neck. Anticholinergic therapy is contraindicated in patients with increased PVR. Biofeedback is useful in patients with pelvic floor spasticity, which this patient does not have. Urethral dilation has no effect on the bladder neck. A trial of medical therapy with an alpha-blocker is indicated. If not successful in relieving symptoms and/or decreasing PVR, incision of bladder neck is indicated.

96. A seven-year-old girl has urgency, frequency, and diurnal enuresis. She is wet every day, requiring clothes changes twice daily. Physical exam and urinalysis are normal. She is placed on oxybutynin 5 mg bid and timed voiding. She returns two weeks later and reports no change in the diurnal enuresis. The next step is:
A. MRI scan of the lumbosacral spine.
B. add imipramine.
C videourodynamics.
D. voiding diary.
E. urethral dilation.
ANSWER=D
Diurnal enuresis occurs in 5% of seven-year-old children. In most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature. Urethral dilation is not indicated for the treatment of enuresis. Some authors have suggested that an occult tethered cord is responsible for persistent diurnal enuresis. However, imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation.

97. A 66-year-old man is undergoing implantation of a semi-rigid penile prosthesis. During dilation of the corpora, blood is noted at the urethral meatus and a tear is seen in the distal urethra. The best management is:
A. abort implantation and place urethral catheter.
B. abort implantation and place suprapubic tube.
C. continue implantation and place urethral catheter.
D. continue implantation and repair urethra.
E. continue implantation and place suprapubic tube.
ANSWER=A
The most common location for urethral laceration during implantation of a penile prosthesis is in the distal urethra, usually at the meatus. It is generally not possible to repair these injuries, and the procedure should be aborted allowing the laceration to heal over a urethral catheter for three to five days. Suprapubic diversion is unnecessary, and re-operation can be performed in four to six weeks.

98. The benefit of mitotane for the treatment of patients with adrenocortical carcinoma is:
A. neoadjuvant, where reduction of tumor size facilitates surgical resection.
B. palliative, relieving endocrine-related symptoms.
C. neoadjuvant, for prevention of local recurrence.
D. adjuvant, for prevention of local recurrence.
E. neoadjuvant, for improving survival.
ANSWER=B
Mitotane is used as an adrenolytic for the management of patients with advanced adrenocortical carcinoma. It is 70% successful at palliating endocrinologic manifestation of the malignancy. Objective response rates (reduction of tumor size), however, are only 20-30% in most series. There are no substantial reports about the potential use of mitotane in the neoadjuvant setting, and there are no randomized, prospective data suggesting a benefit in the adjuvant setting. Side effects include anorexia, emesis, confusion, somnolence, myalgia, and ataxia, and can be substantial, making this agent less appealing for long-term use in an adjuvant setting.

99. A 25-year-old asymptomatic Caucasian woman has a blood pressure of 220/120. Her blood pressure at age 23 was 120/70. The most likely cause of her hypertension is:
A. essential hypertension.
B. polycystic kidney disease.
C. primary aldosteronism.
D. pheochromocytoma.
E. renovascular disease.
ANSWER=E
A young Caucasian female presenting with a sudden rise in blood pressure will most commonly have renovascular disease. Fibromuscular disease of the renal artery accounts for one third of renovascular hypertension. Medial fibroplasia accounts for 75-80% of the fibromuscular dysplasias.

100. During implantation of an artificial urinary sphincter in a man, the most common intraoperative injury is to the:
A. urethra during dissection of the bulbo-spongiosus muscle.
B. urethra at the attachment to the corporal bodies.
C. bladder during reservoir placement.
D. femoral vessels during tube routing.
E. spermatic cord during pump placement.
ANSWER=B
Urethral injury is the most common untoward event during placement of an artificial sphincter. The most difficult point in the dissection and the most frequent site of injury is where the urethra is attached to the septum of the corporal bodies at the 12 o'clock position.

101. A 57-year-old man develops fever, nausea and increasing abdominal pain seven days following a laparoscopic nephrectomy. Despite bowel rest and antibiotics, he develops worsening symptoms. A KUB reveals free air in the abdominal cavity with dilated loops of small bowel. The next step is:
A. abdominal ultrasound.
B. barium enema.
C. CT scan of the abdomen with I.V. contrast.
D. CT scan of the abdomen with oral contrast.
E. immediate surgical exploration.ANSWER=D
During laparoscopic surgery, electrosurgically induced thermal injury may occur via one of four mechanisms: inappropriate direct activation, coupling to another instrument, capacitive coupling, and insulation failure. Intraoperatively, thermal injuries of the bowel may present as whitish spots on the serosal lining. In severe cases, the muscularis mucosae or the intestinal lumen may be seen. However, in many patients, thermal injury of the bowel is not realized at the time of the procedure. Postoperatively, the patient with unrecognized bowel trauma may not develop fever, nausea, or signs of peritonitis for three to seven days; the full extent of the bowel necrosis may take up to 18 days to fully develop. Therefore, the problem often does not become manifest until the patient has been discharged. Accordingly, bowel injury must be ruled out for any patient who develops a fever beyond postoperative day one or

who complains of increasing abdominal discomfort. Abdominal radiographs are notoriously inaccurate because the carbon dioxide from the laparoscopy may remain as "free air" for more than two weeks after the procedure; however, an ileus pattern is usually present. An abdominal ultrasound will similarly be nonspecific and may detect loops of bowel or free fluid. The more sensitive test is an abdominal CT scan with oral contrast and delayed films. Laboratory values may be remarkable for leukocytosis with an associated left shift (i.e., increased percentage of neutrophils); in some patients, the latter occurs in the face of a normal leukocyte count. Minor postoperative thermal injuries of the bowel may be managed conservatively, aided by administration of antibiotics and an elemental diet. However, if the patient does not respond rapidly or develops worsening peritonitis, open surgical exploration is mandatory. Thermal injury caused by monopolar cautery often results in tissue damage that extends beyond the visible area of necrosis. With this in mind, the surgeon should perform a bowel resection with a safety margin of 6 cm on either side before completing an end-to-end anastomosis. Thermal injury caused by bipolar electrosurgery is more confined to the visible area of damage; thus, if the injury is small, it can be managed by simple excision of the defect and closure of the bowel wall. Injuries that involve more than half of the circumference of the bowel should be treated by excision of the affected bowel segment and end-to-end anastomosis.

102. A six-month-old boy has microscopic hematuria. His calcium to creatinine ratio is 0.6. The best treatment is:
A. double fluid intake.
B. thiazides.
C. ACE inhibitor.
D. potassium citrate.
E. observation.
ANSWER=E
During childhood one of the more common associations with hematuria is elevated calcium excretion. The calcium creatinine ratio in the first year of life is usually less than or equal to 0.6. After one year of life, the ratio should be less than 0.4. Because this value is normal at this age observation is the correct answer.

103. A 28-year-old C-6 quadriplegic man with recurrent urosepsis cannot perform CIC and has unreliable home help. He has failed two external sphincterotomies and developed urethral erosion following indwelling urethral catheter drainage. The best treatment is:
A. repeat external sphincterotomy.
B. vesicostomy.
C. ileal conduit urinary diversion.
D. continent urinary diversion.
E. ileovesicostomy.
ANSWER=E
An incontinent ileovesicostomy avoids the risks of chronic catheter drainage. Continent urinary diversion is inappropriate in this setting. A repeat external sphincterotomy will most likely fail. Supravesical urinary diversion may involve more extensive surgery than necessary. Vesicostomy is difficult to manage in adults due to problems in securing a collecting device on the abdominal wall.

104. A 23-year-old man develops chylous ascites after RPLND. He is initially managed with a medium chain triglyceride diet, and for the last two weeks, with total parenteral nutrition. He is still requiring periodic paracentesis four weeks postoperatively. The next step is:
A. continue current management.
B. add somatostatin.
C. laparoscopic ligation of the source.
D. open surgical ligation of the source.
E. peritoneovenous shunt.
ANSWER=B
After making the patient NPO and starting TPN, the next step is the administration of subcutaneous or I.V. somatostatin. Recent reports have shown a beneficial effect leading to drying up of lymphatic fistulas in this setting. Somatostatin works by decreasing the absorption of fats, inhibiting gastric, intestinal, and pancreatic secretions, and inhibiting motor activity of the intestines. The net effect is reduced flow within the major lymphatic channels, and reduced leakage from the fistula site. Somatostatin is thus recommended prior to proceeding with more invasive measures.

105. The consequence of DDAVP when used to treat nocturnal enuresis is:
A. increased urine osmolality.
B. decreased urinary sodium.
C. down-regulation of vasopressin receptors.
D. mild hyponatremia.
E. mild hyperkalemia.
ANSWER=A
Desmopressin (DDAVP), a vasopressin analogue, is therapy for nocturnal enuresis due to an absent nocturnal boost of endogenous vasopressin. Prior studies found an improvement in 50-75% of patients with DDAVP. Desmopressin increases urine osmolality. It does not suppress endogenous vasopressin. Electrolyte studies show no consistent alteration. Hourly nocturnal urine production drops. Chronic usage up-regulates vasopressin receptors.

106. The most important area of the brain for sexual drive and erection is the:
A. medial pre-optic area.
B. parahippocampus.
C. caudate nucleus.
D. frontal lobe.
E. parietal lobe.
ANSWER=A
The medial pre-optic area has been identified in animals as the most important central integration center for sexual drive and penile erection. This area along with the paraventricular nucleus is driven by dopaminergic neurons. Stimulation of these neurons by dopamine sets off an oxytocinergic pathway to the spinal cord which eventuates in increased neural signaling into the penis. In the future, there is likely to be erectogenic drugs that are centrally-acting. The two most likely candidate classes are dopaminergic agonists or melanocortin agonists.

107. When using bisphophonates in men, which of the following should be prescribed:
A. potassium chloride.
B. calcium and vitamin D.
C. a low oxalate diet.
D. a high protein diet.
E. hydrocortisone.
ANSWER=B
Bisphosphanates prevent osteoclastic absorption of calcium from the bones and can lead to hypocalcemia. Calcium should be given to prevent this and, along with Vitamin D, to enhance long-term bone health and stability.

108. Unilateral renal agenesis is associated with an increased incidence of:
A. ipsilateral anorchia.
B. two vessel umbilical cord.
C. ipsilateral adrenal agenesis.
D. Mullerian duct abnormalities.
E. urethral anomalies.
ANSWER=D
Unilateral renal agenesis occurs in one out of 1200 births; it is more common on the left and may be inherited in an autosomal dominant pattern with variable inheritance. Genital abnormalities are the most frequently associated anomaly with approximately 40% of women having a concurrent mullerian duct abnormality usually, a unicornuate uterus with complete absence of the ipsilateral horn and fallopian tube. In men the testis and globus major are invariably present however the mesonephric duct derivatives, the globus minor, vas deferens, seminal vesicle, ampulla, and ejaculatory duct are absent, in up to 50%. Ureteral bud abnormalities also coexist with 25% of affected patients having vesicoureteral reflux, 10% having the contralateral kidney affected by a UPJ obstruction and 5% having the contralateral kidney affected by an obstructing megaureter. Twenty-five to thirty percent of children with the VACTERL association (vertebral, imperforate anus, cardiac, tracheo-esophageal atresia, renal, and limb anomalies) will have unilateral renal agenesis. Ipsilateral adrenal agenesis and two vessel cords are not significantly increased in patients with unilateral renal agenesis.

109. Hydroureteronephrosis of pregnancy is primarily caused by increased:
A. estrogen.
B. progesterone.
C. urine output.
D. intravesical pressure.
E. uterine size.
ANSWER=E
Hydroureteronephrosis of pregnancy commonly begins in the second trimester and is thought to have a multifactorial etiology. Although changes in plasma estrogen, progesterone, and human chorionic gonadotropin have been implicated, obstruction by the gravid uterus appears to be the primary factor in the development of the hydronephrosis.

110. A 51-year-old woman is scheduled to undergo abdominal sacrocolpopexy and paravaginal and rectocele repair for complete vaginal vault prolapse. She denies having stress incontinence. The following procedure should be performed at the same time:
A. none.
B. Kelly plication.
C. mid-urethral sling.
D. Burch colposuspension.
E. pubovaginal sling.
ANSWER=D
The purpose of the NIH CARE (Colpopexy And Urinary Reduction Efforts) study was to determine if the development of stress incontinence is reduced in continent women undergoing abdominal sacrocolpopexy randomized to Burch colosuspension versus no suspension. Enrollment was stopped early based on interim results because less stress incontinence was seen in patients randomized to the Burch procedure. The data will be further analyzed to determine if any aspect of urodynamic testing predicts outcome. Although any of the other procedures might be as effective as a Burch procedure at preventing stress incontinence post-operatively, they were not examined in the randomized trial.

111. A 14-year-old boy has a painless mass above the right testis. The mass is removed through the groin and pathology reveals a completely resected paratesticular rhabdomyosarcoma. His abdominal CT scan is normal. The next step is:
A. repeat CT scan in three months.
B. adjuvant chemotherapy with doxorubicin and alkylating agents.
C. retroperitoneal radiation.
D. ipsilateral retroperitoneal lymph node dissection.
E. bilateral retroperitoneal lymph node dissection.
ANSWER=D
There is a significant rate of false negative imaging of the retroperitoneum on CT scan and microscopic disease may be present in patients with paratesticular rhabdomyosarcoma. Boys ten years of age or younger can be treated with chemotherapy alone. Boys over ten years of age should undergo ipsilateral lymph node dissection since 50% will have microscopic disease. Bilateral lymph node dissections are more morbid and do not improve survival over unilateral surgery. If the lymph nodes are positive for metastasis, the patient will require radiation therapy to the retroperitoneum in addition to chemotherapy.

112. A 26-year-old diabetic man has a progressively decreasing urinary stream secondary to a long-standing bulbar urethral stricture. He has a two week history of high fevers and chills. Physical examination reveals perineal crepitance, erythema and a palpable bladder. The next step is antibiotics and:
A. diverting colostomy and bladder drainage.
B. hyperbaric oxygen.
C. debridement and bladder drainage.
D. CT-directed drainage.
E. bladder drainage.
ANSWER=C
Fournier's gangrene is a dramatic necrotizing fasciitis of the genital and perineal regions. It is commonly seen in association with diabetes mellitus and with a predisposing anorectal or genitourinary conditions such as urethral stricture or perirectal abscess. Treatment consists of wide surgical debridement of necrotic tissue and urinary diversion. Multiple debridement sessions are frequently required to remove all non-viable tissue. Use of colostomy for fecal diversion is not routine. Fecal and urinary diversion without radical debridement is inadequate treatment. Percutaneous CT-guided drainage is not effective as there is no distinct abscess. Foley drainage, antibiotics, and hyperbaric oxygen may be adjunctive treatment but are not primary modes of therapy.

113. A 62-year-old man with a normal DRE and PSA of 1.3 ng/ml begins testosterone supplementation for symptomatic hypogonadism. Six months later his PSA is 2.8 ng/ml, the DRE remains unchanged and the serum testosterone is 550 ng/dl. The next step is:
A. repeat PSA in six months.
B. administer testosterone every other day.
C. stop testosterone supplementation.
D. finasteride.
E. prostate biopsy.
ANSWER=E
A rise in PSA of 1-1.5ng/ml/year following initiation of testosterone supplementation is worrisome for the presence of an undetected prostate cancer. While observation with a repeat PSA could be done, in patients who choose to remain on testosterone replacement a prostate biopsy is recommended. If cancer is detected, then testosterone replacement should be discontinued. Therefore, the recommendation would be to perform a prostate biopsy. The utilization of finasteride in this setting is not indicated.

114. A three-year-old boy has a palpable abdominal mass. Ultrasound and CT scan demonstrate a multilocular cyst. The next step is:
A. repeat ultrasound in one year.
B. cyst aspiration.
C. genetic testing.
D. tumor resection.
E. MRI scan.
ANSWER=D
Multilocular cystic nephromas occur in two temporal peaks. Fifty percent (50%) are found in children less than four years of age, usually boys and 50% are found in women in their 30's. Multilocular cystic nephroma exist on a spectrum that extends from multilocular cystic nephroma to either a cystic Wilms' in the younger children to cystic renal cell carcinoma in the adult patient. There is no indication that one lesion can convert to the other. Although benign in nature these tumors will continue to grow. Surgical excision is recommended to prevent destruction of adjacent renal tissue and confirm the diagnosis. Partial nephrectomy is preferred, but nephrectomy may be necessary for some lesions.

115. A 53-year-old man with a history of cyclophosphamide chemotherapy has clot urinary retention. He continues to require daily blood transfusions despite cystoscopic and catheter clot evacuation, and subsequent three-way urethral catheter irrigations. Alum irrigations and PGE2 instillations have been unsuccessful. A cystogram shows no VUR. The next step is:
A. percutaneous nephrostomy drainage.
B. 10% formalin bladder irrigations.
C. 10% formaldehyde bladder irrigations.
D. cystectomy.
E. 1% formalin bladder irrigations.
ANSWER=E
Formaldehyde is a gas that can be dissolved in water. The maximum dissolution is 37% formaldehyde in an aqueous solution. In other words, 100% formalin equals 37% formaldehyde solution. This solution is then diluted to give an appropriate concentration of formalin. Typically one starts with a low concentration (1%) of formalin bladder irrigations. If this fails subsequent irrigations can be increased to higher concentrations. One should first perform a cystogram to exclude vesicoureteral reflux. If reflux is found one should place ureteral occlusion balloons. Patients should be aware of potential postoperative pain, decreased bladder volume, and marked urinary urgency and frequency.

116. A 70-year-old man develops hematuria 18 months following a radical cystectomy and orthotopic neobladder. A urine cytology is positive for malignant cells. On cystoscopy, a focal area of erythema in the posterior urethra reveals CIS. The next step is:

A. intraurethral BCG.
B. segmental urethrectomy.
C. segmental urethrectomy with perineal urethrostomy.
D. total urethrectomy.
E. radiation therapy.
ANSWER=A
Urethral recurrence following radical cystectomy and orthotopic neobladder is a rare event with a reported incidence of 2-3%. While invasive tumors are an indication for total urethrectomy and ileal conduit, noninvasive tumors can be managed initially with conservative therapy. For papillary tumors, TUR alone may be curative. However, intravesical chemotherapy and immunotherapy have been used in this setting, and in this patient with CIS, an initial attempt at preservation of the urethra and neobladder is warranted. For this reason, intraurethral BCG is the most appropriate choice.

117. Prenatal ultrasonography of a 22-week-male fetus shows bilateral hydroureteronephrosis and a thick-walled bladder. The finding that supports early intervention is:
A. hyperechoic kidneys.
B. oligohydramnios.
C. renal cortical cysts.
D. abnormal urine electrolytes.
E. perinephric urinoma.
ANSWER=B
The most likely diagnosis in this fetus is posterior urethral valves based upon male sex, bilateral hydronephrosis and a thick-walled bladder. The clinical outcome of a child with severe posterior urethral valves is most specifically predicted by the presence or absence of oligohydramnios and when the onset of oligohydramnios was noted to occur. Increased renal echogenicity alone is not predictive, although in the setting of oligohydramnios is a poor prognostic indicator. Urinary electrolytes are useful only in the setting of oligohydramnios, as an indicator of renal salvageability, and in early gestation (18 to 24 weeks). Renal cortical cysts would indicate dysplasia, and prenatal intervention would not be beneficial.

118. A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:
A. radical eschar debridement.
B. split thickness skin grafts.
C. hyperbaric oxygen therapy.
D. remove urethral catheter and insert suprapubic tube.
E. observe for wound granulation.
ANSWER=D
If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. All viable tissue should be preserved. Minimal debridement should be used in conjunction with topical antimicrobials. After granulation occurs, split thickness skin grafts are applied.

119. A 73-year-old man with localized prostate cancer develops acute urinary retention following interstitial brachytherapy. A factor associated with an increased risk for this complication is:
A. pre-treatment PSA.
B. prostate volume.
C. patient age.
D. Gleason score.
E. choice of radioisotope.
ANSWER=B
Acute urinary retention following brachytherapy is a common problem and may occur in up to one-third of patients. In prospective evaluations, patients with larger prostate volumes (> 50 grams) and moderate to severe baseline lower urinary tract symptom (LUTS) scores as assessed by patient reported validated instruments (AUA/IPSS) are associated with an increased risk for development of acute urinary retention. There is little if any available data to support an association between various dosimetry variables or tumor characteristics (Gleason score, PSA, clinical stage) and acute urinary retention. While androgen deprivation therapy has been advocated by some in downsizing large volume prostates prior to brachytherapy, patients should be counseled regarding the risk of acute urinary retention and long-term worsening of LUTS following brachytherapy, particularly among patients with moderate to severe baseline symptoms.

120. The medication with neuroregenerative activity after radical prostatectomy is:
A. erythropoietin.
B. prostaglandin E1.
C. sildenafil.
D. tadalafil.
E. gabapentin.
ANSWER=A
The concept of neuromodulation is well established in animal models and trials in humans with a variety of neurodegenerative disorders are ongoing. Trials have been conducted in the USA using such drugs in the patient undergoing radical prostatectomy. There is no evidence at this stage that phosphodiesterase 5 inhibitors have any significant neuroprotective or neuroregenerative ability. Likewise, PGE1 a cAMP activator is not a neuromodulator. Gabapentin is used for neuropathic pain. Erythropoietin increases erythrocyte production in the anemic patient. It has recently been demonstrated to promote neurogenesis.

121. The definitive diagnosis of genital herpes simplex virus infection requires:
A. viral culture.
B. viral typing.
C. punch biopsy.
D. serological testing.
E. cytologic examination.
ANSWER=A
The Tzanck smear uses cytologic techniques to examine cells from suspicious lesions, but a positive smear does not differentiate varicella-zoster virus from herpes simplex. Serological testing may reveal elevated antibody titers but will not distinguish between a previous infection, a primary infection, and a recurrent infection. In the past, herpes simplex virus type 1 (HSV-1) was associated with oral infections and HSV-2 with genital infections. Possibly because of an increase in oral-genital sexual contact, HSV-1 genital infections have become more common. The current method of choice for definitive identification of HSV is viral isolation in tissue culture.

122. Compared to a hand-sewn bowel anastomosis, a stapled anastomosis has:
A. a lower reoperative rate.
B. a higher fistula rate.
C. a reduced operative time.
D. a lower rate of prolonged ileus.
E. a higher rate of obstruction.
ANSWER=C
The theoretical benefits of a stapled anastomosis are that it provides better blood supply to the healing margin, tissue manipulation is reduced, there is minimal edema with uniformity of suture placement, a wider lumen created, greater ease and less time are involved in performing the anastomosis, and the length of the postoperative paralytic ileus is reduced. In a large, prospective randomized study in which a hand-sewn two layer closure was compared to a stapled anastomosis, the complication rates were similar. However, the stapled anastomosis was faster by about 10 minutes. A comparison of the complication rates between sutured and stapled anastomoses reveals a leak and fistula rate of 2.8% for stapled and 3.0% for sutured anastomoses. Thus, the decision to perform a hand-sewn as opposed to a stapled anastomosis is based on surgeon preference and efficiency rather than efficacy.

123. A three-year-old phenotypic girl undergoes an abdominal and pelvic ultrasound for intermittent abdominal pain. No uterus is seen on the ultrasounds. Right and left gonads are identified in their respective inguinal canal. Karyotype is 46 XY. The next best step is:
A. genetic sequencing of patient's androgen receptor gene.
B. serum for LH, FSH and serum testosterone.
C. serum for Mullerian inhibitory factor.
D. serum for 17-hydroxyprogesterone.
E. gonadal biopsy.
ANSWER=A

In the prepubertal phenotypic female with suspected testicular tissue, endocrinologic studies are not very useful. Normal prepubertal levels of LH, FSH and testosterone are sexually indifferent. After puberty, patients with complete androgen insensitivity (CAIS) will classically have elevated LH, testosterone and estradiol. Mullerian inhibitory factor assessments after six months of age are also sexually indifferent. In this clinical situation, the major concern is the misdiagnosis of a patient with 5-alpha-reductase deficiency who should be raised as a male, compared to a patient with CAIS, who should be raised as a female. The best test to separate these two disorders is with genetic sequencing of the androgen receptor or 5-alpha-reductase gene. 10% of patients with CAIS will develop a testicular cancer if the testes are left in situ after puberty; no cases of prepubertal testicular carcinoma have been reported in this patient population. No indication exists for gonadal biopsy and the timing of gonadectomy, prepubertal or late pubertal, is controversial.

124. Calcium oxalate calculi appear on MRI scan as:
A. high intensity T1 weighted image.
B. low intensity T2 weighted image.
C. low core intensity image.
D. poorly visualized image.
E. bright bone-like signal image.
ANSWER=D
Non-contrast CT images can identify all calcium oxalate calculi as high density signals similar to bone. Additionally, uric acid and matrix calculi that are frequently radiolucent on scout radiographs are easily identified with CT. MRI scans are unable to reliably identify urinary calculi.

125. The immune mechanisms involved in BCG immunotherapy for CIS of the bladder include:
A. granuloma-like cellular foci in the bladder wall.
B. specific binding of BCG to e-cadherin.
C. specific binding of BCG to epidermal growth factor receptors.
D. development of non-specific cystitis.
E. T-helper type 2 cytokine response.
ANSWER=A
Numerous studies over the past decade have resulted in a substantially greater understanding of the immune mechanisms involved in BCG immunotherapy for bladder cancer. BCG initially binds to the urothelium through the interaction of fibronectin attachment protein (FAP) on the mycobacterial cell wall and fibronectin in the bladder wall. There is subsequent activation of urothelial and antigen-presenting cells resulting in the recruitment of granulocytes and immunocompetent mononuclear cell. This leads to a cascade of proinflammatory cytokines that sustains the immune response resulting in a predominately T-helper type 1 cytokine response and the development of granuloma-like cellular foci in the bladder wall. Ultimate eradication of residual tumor cells occurs through both direct cytotoxicity with interferon and other cytokine mediated toxicity.

126. A one-year-old 10 kg boy with spina bifida is maintained on oxybutynin 2 mg tid, and CIC every four hours. His ultrasound demonstrates progressive bilateral hydronephrosis, and a diuretic scan performed with a catheter in the bladder reveals no evidence of ureteral obstruction. A CMG demonstrates a detrusor pressure of 40 cm H2O at a volume of 35 ml and a detrusor LPP of 58 cm H2O at a volume of 50 ml. The next step is:
A. increase oxybutynin.
B. change to tolterodine.
C. decrease catheterization interval.
D. cutaneous vesicostomy.
E. enterocystoplasty.
ANSWER=D
This child is receiving near-maximal doses of oxybutynin and has a high-risk bladder profile. Tolterodine may have a lower side effect profile, but would not be expected to have a significantly different effect on bladder compliance. More frequent catheterization might be helpful, but in most social circumstances is unrealistic. Enterocystoplasty carries risks of acidosis, decreased bone growth and bladder augment rupture, and for these reasons is usually reserved for older children. Cutaneous vesicotomy will result in a low pressure system, and will protect the upper tracts until enterocystoplasty is more likely to be successful. Another option in this situation is urethral/sphincter dilation in an attempt to reduce detrusor LPP and improve compliance.

127. A 27-year-old HIV positive man has acute left flank pain. Urinalysis reveals microscopic hematuria. Noncontrast helical CT scan demonstrates left hydroureteronephrosis without evidence of stones. The medication that most likely caused his hydronephrosis is:
A. isoniazid.
B. rifampin.
C. indinavir.
D. trimethoprim-sulfamethoxazole.
E. zidovudine (AZT).
ANSWER=C
HIV patients have had dramatic clinical improvement with protease inhibitors. These drugs (primarily indinavir) can result in as high as a 6% incidence of urinary calculi. In the pure form these calculi are not demonstrated on noncontrast helical CT scan or standard radiographic imaging studies. Management should include hydration, discontinuation of medication for two to three days, and conservative pain management. Most stones will pass spontaneously.

128. A long-term toxicity of cisplatin-based chemotherapy for testis cancer is:
A. diabetes.
B. arthritis.
C. scleroderma.
D. obesity.
E. coronary artery disease.
ANSWER=E
Chemotherapy for testis cancer has been shown to be associated with an increased risk of vascular complications including lipid abnormalities, coronary artery disease including Ml, Raynaud phenomenon, and hypertension. Two large studies report the relative risk of developing coronary artery disease to be between 2.6 and 7.1 in patients more than nine years following completion of chemotherapy. Men treated with chemotherapy for testis cancer also are at significantly increased risk of second malignancies.

129. A 16-year-old boy has a complete T-12 spinal cord injury. After spinal shock resolves, he is likely to have:
A. no erection, poor ejaculation.
B. no erection, vibratory ejaculation.
C. reflexogenic erection, vibratory ejaculation.
D. reflexogenic erection, poor ejaculation.
E. psychogenic erection, poor ejaculation.
ANSWER=D
Patients with upper spinal cord injuries tend to have preservation of reflexogenic erection, but not psychogenic or nocturnal erection. Both of these require action of brain centers. Vibratory ejaculation is dependent on sympathetic input from the thoracic cord located at T-10. This function is unlikely to be preserved in injuries below T-10. Electroejaculation may be used to harvest semen.

130. A 28-year-old man is undergoing retrograde endopyelotomy for right UPJ obstruction. Immediately after making an incision on the lateral aspect of the ureter, blood fills the bladder. Clots are evacuated and vital signs remain stable. Abdominal examination reveals fullness over the right upper quadrant. The next step is:
A. exploratory laparotomy.
B. angiography with embolization.
C. observation.
D. ureteroscopy with fulguration.
E. place 14 F stent.
ANSWER=B
Retrograde endopyelotomy may result in dramatic life-threatening hemorrhage. This is usually due to an unrecognized lower pole crossing artery. If this is suspected an emergent arteriogram should be performed and the injured vessel embolized. Delayed intervention may result in continued transfusions, hemorrhagic shock and potential death. Retrograde ureteroscopy with fulguration is impractical with the marked hemorrhage. Ureteral stent placement will only temporize a potentially fatal situation. Exploratory laparotomy will likely result in nephrectomy. Angiography, in contrast, will likely result in embolization of a lower pole vessel and retain the vast majority of renal function. Exploratory laparotomy

may be required after a negative arteriogram and persistent hemorrhage, likely secondary to a venous injury.

131. Death from prostate cancer after radical prostatectomy is associated with:
A. a post-operative PSA doubling time of > 12 months.
B. the first detectable PSA within three years of surgery.
C. a post-operative PSA rising above 2.0 ng/ml.
D. an increase in PSA > 2.0 ng/ml in the year prior to diagnosis.
E. a reduction in the ratio of free/total PSA by 10% in the year before the diagnosis.
ANSWER=D
Up to 35% of patients will develop a PSA recurrence within ten years after surgery. The natural history of biochemical recurrence after radical prostatectomy can be long and variable. On average, the median time from biochemical recurrence to metastases is eight years and from metastases to death is five years. Given the protracted natural history, identifying clinical variables that distinguish patients at risk for death from prostate cancer is essential. In one study of 1095 men with localized prostate cancer treated with radical prostatectomy, patients were assessed as to whether the rate of rise in the PSA level, the PSA velocity, during the year before diagnosis, the PSA level at diagnosis, the Gleason score, and the clinical tumor stage could predict death from prostate cancer. As compared with a preoperative annual PSA change of 2.0 ng/ml or less, an annual PSA change of more than 2.0 ng/ml was associated with a significantly shorter time to death from prostate cancer in those patients with a rising PSA after surgery. An increasing PSA level at diagnosis, a Gleason score of 8, 9, or 10, and a clinical tumor stage of T2 also predicted the time to death from prostate cancer. Thus, men whose PSA level increases by more than 2.0 ng/ml during the year before the diagnosis may have a relatively high risk of death from prostate cancer despite undergoing radical prostatectomy.

132. A three-year-old boy has a fever of 100° F, WBC count of 17,000, and purulent umbilical drainage. A pelvic ultrasound reveals a thickened structure between the dome of the bladder and the umbilicus which contains a central 2 cm complex mass. There is no obstruction or extravasation on a VCUG. The next step is antibiotics followed by:
A. cystoscopy.
B. incision, drainage and packing.
C. excision of urachus and partial cystectomy.
D. delayed excision of urachus.
E. chemical sclerosis of the sinus tract.
ANSWER=D
Congenital abnormalities of the urachus include a urachal sinus, urachal cyst, patent urachus, vesicourachal diverticulum, and omphalomesenteric cyst/duct. Urachal abnormalities occur equally between boys and girls and present more often in adulthood with umbilical drainage followed by an umbilical mass and periumbilical pain. Staphylococcus aureus is the most common bacteria cultured from an infected sinus tract or cyst. An important aspect of treatment is initial antibiotic therapy. Incision and drainage or percutaneous drainage may be required for loculated abscess, particularly when it is non-responsive to antibiotic therapy. Omphalomesenteric ducts may connect the midgut to the umbilicus. Ultrasound will demonstrate a periumbilical mass and a sinogram will reveal communication of the umbilical sinus to the ileum. Definitive treatment centers on excision that should be delayed for a few weeks following the initial antibiotic therapy in order to decrease the inflammatory response. This will help limit the amount of bladder that may need to be resected and will reduce the risk of injury to adjacent intra-peritoneal structures.

133. A 32-year-old woman with Cushing's syndrome fails to suppress Cortisol production during a low dose dexamethasone suppression test. Which result of a high dose dexamethasone suppression test (2 mg every six hours) establishes the diagnosis of Cushing's disease:
A. suppression of urinary 17-hydroxycorticosteroids.
B. no change in urinary 17-hydroxycorticosteroids.
C. elevation of urinary 17-hydroxycorticosteroids.
D. suppression of urinary 17-ketosteroids.
E. elevation of serum ACTH.
ANSWER=A
Cushing's syndrome may be caused by an adrenal tumor, ectopic ACTH production, and by excessive pituitary ACTH secretion (Cushing's disease). The basis of the high dose dexamethasone suppression test is that ACTH secretion in patients with Cushing's disease is not completely, but only partially, resistant to glucocorticoid feedback inhibition. Therefore, by increasing the dose of dexamethasone, pituitary secretion of ACTH is suppressed in patients with Cushing's disease and glucocorticoid production is reduced. In contrast, dexamethasone has no effect in patients with adrenal tumors and ectopic ACTH production since their pituitary glands are already suppressed. Serum Cortisol may be used instead of urinary parameters.

134. Renal medullary carcinoma is characterized by:
A. occurrence predominately in the left kidney.
B. relatively indolent clinical course.
C. a good response to cisplatin-based chemotherapy.
D. being amenable to partial nephrectomy.
E. metastatic disease at presentation.
ANSWER=E
Renal medullary carcinoma was first described in 1995 and to date less than 100 cases have been reported in the literature. It is an extremely aggressive disease with nearly all patients presenting with metastatic disease. Mean survival is less than six months and only two longterm survivors are reported in the literature. It has not been shown to respond to standard chemotherapy and/or immunotherapy regimens. Interestingly, approximately 3/4 of cases have been reported to involve the right kidney. Recent studies have reported amplification of the ABL gene and increased expression of ABL protein in the absence of BCR-ABL translocation characteristic of CML. Whether this tumor is responsive to STI-571 awaits further study.

135. Which of the following is most often elevated in nephrotic syndrome:
A. ASO titer.
B. serum albumin.
C. serum cholesterol.
D. IgA.
E. IgM.
ANSWER=C
The two major glomerular disorders are the nephrotic and the nephritic syndromes. The nephrotic presentation reflects non-inflammatory injury to the glomerular capillary wall, with consequent proteinuria, hypoalbuminuria, and hyperlipidemia due to increased hepatic lipoprotein synthesis. Serum cholesterol is typically elevated. The nephritic presentation is more typically hematuria and inflammatory cells in the urine sediment.

136. Fluoroquinolone antibiotics work by:
A. inhibition of cell wall biosynthesis.
B. alteration of nucleic acid metabolism.
C. inhibition of bacterial DNA gyrase.
D. inactivation of bacterial ribosomal proteins.
E. inhibition of RNA polymerase.
ANSWER=C
The fluoroquinolone antimicrobial drugs have rapidly become widely prescribed in urology. They work by inhibition of bacterial DNA gyrase, an enzyme that is involved with DNA supercoiling.

137. For patients with extracapsular extension and positive surgical margins following radical prostatectomy, adjuvant radiation therapy compared to salvage radiation for a PSA recurrence is associated with:
A. lower five-year PSA and clinical progression.
B. improved overall five-year survival.
C. improved disease-specific survival.
D. increased incidence of urinary incontinence.
E. increased risk of rectal morbidity.
ANSWER=A
The results of a recent large (1005 patients) randomized prospective European trial after a median followup of five years in patients at high risk for progression following radical prostatectomy have been reported. This study has shown significantly improved local control, PSA, and clinical progression rates at five years in patients receiving immediate adjuvant external beam radiotherapy compared to observation and treatment at the time of PSA recurrence. Although

almost twice as many died of prostate cancer in the delayed treatment arm, longer followup is needed to assess this endpoint and no difference was seen in overall five-year survival. An interim analysis of this trial did not show an increased risk of urinary incontinence for adjuvant radiotherapy and the impact on sexual dysfunction was not assessed.

138. A 17-year-old girl with a history of an augmentation cystoplasty undergoes a pubovaginal sling procedure for persistent stress incontinence. On postoperative day three, she has left flank pain and increased drainage from the incision (creatinine of drainage is 9 mg/dl). A CT scan reveals new onset of left hydroureteronephrosis, left perivesical fluid collection, and CT cystogram reveals no extravasation of contrast from bladder. The next step is:
A. cystoscopy, retrograde pyelogram and stent placement.
B. percutaneous nephrostomy.
C. removal of sling.
D. open ureteral repair and removal of sling.
E. ureteroneocystostomy.
ANSWER=A
Although ureteral injuries are uncommon during transvaginal suspension procedures, the ureter occasionally can be injured or obstructed by the surgical dissection or suspension suture. If recognized intraoperatively the suspension suture should be removed and a ureteral stent placed. If this is recognized postoperatively, a retrograde pyelogram will define the extent of the injury and retrograde stent placement attempted. If stenting is not successful, antegrade stenting is advised. Open repair is advised when retrograde or antegrade ureteral stent placement cannot be performed. Ureteroneocystostomy is performed only when significant devitalization of the ureter occurs.

139. The hypercalcemia of sarcoidosis may be differentiated from that of primary hyperparathyroidism by administration of:
A. Vitamin D.
B. calcium gluconate.
C. prednisone.
D. sodium cellulose phosphate.
E. hydrochlorothiazide.
ANSWER=C
Calculi may be the initial feature of sarcoidosis in a small percentage of patients. Sarcoidosis should be suspected in those individuals who have hypercalcemia, normophosphatemia, suppressed serum PTH, and an increased serum angiotensin converting enzyme level. Increased Vitamin D levels in these patients will increase the intestinal absorption of calcium and suppress PTH secretion. Steroids will decrease intestinal absorption of calcium and should normalize both hypercalcemia and hypercalciuria.

140. A contraindication to cytoreductive nephrectomy prior to systemic therapy in an asymptomatic patient with metastatic renal cell cancer is:
A. brain metastasis.
B. vena caval thrombus.
C. involvement of the contralateral adrenal gland.
D. sarcomatoid cell histology.
E. pulmonary metastases.
ANSWER=A
Cytoreductive nephrectomy as part of a multidisciplinary approach to metastatic renal cell carcinoma has been shown to prolong survival in two randomized clinical trials. However, its use is controversial and proper patient selection is crucial. The following inclusion criteria have been suggested for selecting patients for cytoreductive nephrectomy: 1) ability to resect more than 75% of the tumor volume, 2) no brain metastases, 3) adequate pulmonary and cardiac reserve, 4) ECOG performance status of 0 or 1, and, 5) predominantly clear cell histology.

141. A seven-year-old boy with a neurogenic bladder, renal failure, and moderate acidosis is scheduled for a renal transplant. He has diurnal and nocturnal incontinence despite treatment with oxybutynin 5 mg qid. Videourodynamics reveals a bladder capacity of 120 ml with an end-filling detrusor pressure of 70 cm H20 associated with grade 2/5 bilateral VUR, and normal uroflow curve with a 60 cc PVR. The best option is:
A. transplant into native bladder.
B. vesicostomy and transplant into native bladder.
C. bilateral nephrectomy and ureteral augmentation prior to transplant.
D. ileal augmentation prior to transplant.
E. gastrocystoplasty prior to transplant.
ANSWER=D
This child has a high-pressure neurogenic bladder and is not currently suitable to receive a renal transplant. A vesicostomy would decompress his system, however, at his age it would not be socially acceptable or practical. A short ileal conduit has social limitations but also increased risk of chronic pyelonephritis and urolithiasis. Reconstructing the bladder is the most appropriate therapy. The ureters are not large enough to be suitable for ureteral augmentation. While gastrocystoplasty could benefit the immediate metabolic instability, problems with the hematuria/dysuria syndrome in a patient with normal sensation will become apparent. The best reconstructive measure would be to proceed with ileal augmentation prior to transplant.

142. A 24-year-old man has sudden onset of bilateral scrotal pain associated with mild nausea. Six days earlier, he had seen his internist because of bilateral parotid gland swelling. On examination, the testicles are swollen and extremely tender to palpation. The most effective therapy for this condition is bed rest, scrotal elevation, and:
A. indomethacin.
B. steroids.
C. interferon.
D. estrogens.
E. gamma globulin.
ANSWER=C
This patient has mumps-associated orchitis, a condition noted in 18% of post-pubertal patients with mumps. This is usually a self-limited condition that resolves over a seven to ten-day period. However, in over half of the patients with orchitis, testicular atrophy occurs. Interferon alpha-2B can prevent testicular atrophy when administered after orchitis has developed. Bed rest and indomethacin will only help to decrease the pain of the orchitis but will not hasten its resolution or decrease the incidence of subsequent testicular atrophy. Gamma globulin, steroids, and diethylstiIbestrol have been used to try to reduce the overall incidence of mumps orchitis. However, none of these modalities have been found to be of any benefit once orchitis has developed, nor do they prevent testicular atrophy.

143. A 52-year-old man has distal ureteral CIS resected bilaterally at the time of radical cystectomy and planned orthotopic neobladder resulting in considerable shortening of his ureters. The best neobladder option is:
A. hemi-Koch (ileal).
B. Studer (ileal).
C. Carney (ileal).
D. sigmoid.
E. Mainz (ileocolic).
ANSWER=B
The Studer ileal neobladder employs a tubularized afferent limb of ileum measuring 15-25 cm. The purpose of the limb is to allow peristaltic activity of the tubularized segment to prevent ureteral reflux, but a secondary benefit is that the limb can be used to bridge long segments of resected ureter. In cases of extreme shortening, the afferent limb can be elongated to the left paracolic gutter by passing it beneath the sigmoid colon. The remaining proposed reconstruction techniques do not provide a means of bridging the resected ureter, and as such they risk tension on the ureterointestinal anastomoses. The Koch pouch does allow an afferent ileal limb, but is not the best option given the high likelihood of complications including stone formation and mechanical failure of the intussuscepted valve.

144. A newborn undergoes a circumcision with a Gomco clamp. Three days later, he has two separate urinary streams. The next step is:
A. observation.
B. antibiotics.
C. testosterone cream.
D. VCUG.
E. retrograde urethrogram.
ANSWER=A

Urethrocutaneous fistula is an uncommon complication of circumcision. It usually occurs at the time of neonatal circumcision when the urethra is crushed by the circumcision clamp. A fistula can also result from the inadvertent placement of a hemostatic suture into the urethra. This can be repaired if recognized immediately. In this case, observation for 4-6 months may result in spontaneous closure. Otherwise, formal closure of the fistula will be needed. Antibiotics are unnecessary without signs of infection. The injury is too distal for VCUG or retrograde urethrogram to adequately demonstrate the injury. Testosterone cream will not promote healing of this injury.

145. A 25-year-old man with AIDS has a painful, exophytic mass involving the entire length of the penile shaft dorsally. Biopsy reveals Kaposi's sarcoma. The patient has been treated with systemic chemotherapy in the past for control of similar lesions elsewhere. The most appropriate treatment of this lesion is:
A. excision and penile reconstruction.
B. laser photocoagulation.
C. topical 5-fluorouracil.
D. external radiotherapy.
E. topical liquid nitrogen.
ANSWER=D
Treatment of penile Kaposi's sarcoma is palliative. As this patient has received systemic chemotherapy previously, radiotherapy is indicated and very likely to be effective. Although complete responses are uncommon, adequate palliation is seen in approximately 90% of such patients. Complications are limited and the radiation is well tolerated.

146. A 68-year-old male with an indwelling ureteral stent develops profuse bright red blood per urethra. Angiogram reveals an arterioureteral fistula to the right common iliac artery. The best initial treatment is:
A. removal of the ureteral stent.
B. embolization of the affected artery.
C. radiologic placement of an endovascular stent.
D. ureteroureterostomy and omental wrap.
E. vascular bypass procedure and ureteral stent.
ANSWER=C
Arterioureteral fistula is a rare but acute condition that should be treated emergently. It occurs due to pressure from an indwelling ureteral stent on diseased or radiated ileal vessels. Simple removal of the stent is inadequate after the fistula has developed. Embolization of the affected iliac artery is ill-advised. Previously, open repair of the fistula, often with vascular bypass procedure of the affected vessel was the standard therapy, but recent advances in endovascular stents have made this the best initial therapeutic option in this setting.

147. The obliterated umbilical artery courses:
A. posterior to the middle hemorrhoidal artery.
B. lateral to the obturator nerve.
C. medial to the seminal vesicles.
D. anterior to the ureter.
E. caudal to the ampulla of the vas deferens.
ANSWER=D
The obliterated umbilical artery is a consistent landmark for both open and laparoscopic surgery. It is a branch of the internal iliac artery and runs lateral to the bladder and medial to the obturator nerve. It is found anterior to the ureter in the pelvis.

148. A 25-year-old man is admitted with renal colic and a solitary partially obstructing 4 mm left distal ureteral calculus. This is his second stone episode in three years. Full metabolic evaluation for his urolithiasis should be initiated:
A. after resumption of regular diet.
B. one week following ureteral stent placement.
C. after a third stone episode.
D. one month after stone passage.
E. immediately, provided that his urine culture is sterile.
ANSWER=D
In general, within a month of stone passage, the effects of obstruction and/or urinary tract infection have resolved and the patient has returned to his or her normal dietary routine. A complete metabolic evaluation should not be performed in the hospital because of the interruption in the patient's usual daily routine and diet. Likewise, a metabolic evaluation in the presence of an indwelling ureteral stent or partially obstructing calculus may not reflect the patient's normal physiology. Patients should be counseled about increased fluid intake after the first stone episode. Metabolic evaluation should be initiated after the second calculus episode. In general, if the patient's urine is uninfected, and a month has transpired since the time of stone passage, the metabolic evaluation can be performed.

149. A repeat prostate biopsy after an initial finding of atypical foci suspicious for carcinoma, as compared to high grade prostatic intraepithelial neoplasia (HGPIN), has:
A. a significantly higher risk of prostate cancer.
B. a significantly higher risk of high-grade prostate cancer only.
C. an equivalent risk of prostate cancer.
D. a significantly lower risk of prostate cancer.
E. a significantly lower risk of high-grade prostate cancer only.
ANSWER=A
Recently, there was a comprehensive review for patient treatment based on prostate needle biopsies demonstrating prostatic intraepithelial neoplasia (PIN) or atypical foci suspicious for carcinoma. With regards to PIN, the following conclusions were derived. 1) Low grade PIN should not be documented in pathology reports due to poor interobserver reproducibility and a relatively low risk of cancer following re-biopsy. 2) The expected incidence of HGPIN on needle biopsy is between 5% and 8%. 3) Although the diagnosis of HGPIN is subjective, interobserver reproducibility for its diagnosis is fairly high among urological pathologists. 4) The median risk recorded in the literature for cancer following the diagnosis of HGPIN on needle biopsy is 24.1%. 5) The majority of publications that compared the risk of cancer in the same study following a needle biopsy diagnosis of HGPIN to the risk of cancer following a benign diagnosis on needle biopsy show no differences between the 2 groups. 6) Clinical and pathological parameters do not help stratify which men with HGPIN are at increased risk for a cancer diagnosis. 7) A major factor contributing to the decreased incidence of cancer following a diagnosis of HGPIN on needle biopsy in the contemporary era is related to increased needle biopsy core sampling, which detects many associated cancers on initial biopsy, such that rebiopsy, even with good sampling, does not detect many additional cancers. 8) It is recommended that men do not need routine repeat needle biopsy within the first year following the diagnosis of HGPIN, while further studies are needed to confirm whether routine repeat biopsies should be performed several years following a HGPIN diagnosis. The results concerning atypical glands suspicious for carcinoma were summarized as follows. 1) An average of 5% of needle biopsy pathology reports are diagnosed as atypical glands suspicious for carcinoma. 2) Cases diagnosed as atypical have the highest likelihood of being changed upon expert review and urologists should consider sending such cases for consultation in an attempt to resolve the diagnosis as definitively benign or malignant before subjecting the patient to repeat biopsy. 3) Ancillary techniques using basal cell markers and AMACR (alphamethyl-acyl-coenzyme A racemase) can decrease the number of atypical diagnoses, and yet one must use these techniques with caution since there are numerous false-positive and falsenegative results. 4) The average risk of cancer following an atypical diagnosis is approximately 40%. 5) Clinical and pathological parameters do not help predict which men with an atypical diagnosis have cancer on repeat biopsy. 6) Repeat biopsy should include increased sampling of the initial atypical site, and adjacent ipsilateral and contralateral sites with routine sampling of all sextant sites. Therefore, it is critical for urologists to submit needle biopsy specimens in a manner in which the sextant location of each core can be determined. 7) All men with an atypical diagnosis need re-biopsy within three to six months. The authors concluded that it is critical for urologists to distinguish between a diagnosis of HGPIN and that of atypical foci suspicious for cancer on needle biopsy. These two entities indicate different risks of carcinoma on re-biopsy and different recommendations for follow-up.

150. A 17-year-old boy with bladder exstrophy and a prior history of an ileal conduit and cystectomy undergoes conversion to a continent ileocecal reservoir. Six months later, he develops steatorrhea and urolithiasis. Which bowel absorptive pattern is likely present:

	Bile salts	Oxalate	Calcium	Vit.A & D
A.	↓	↑	↓	↑
B.	↑	↑	↓	↑
C.	↑	↓	↑	↑
D.	↓	↑	↓	↓
E.	↓	↓	↑	↓

ANSWER=D

The prior ileal conduit and the present continent cecal reservoir has led to the loss of significant ileum. The terminal ileum is responsible for the reabsorption of bile salts. With significant loss of ileum, bile salts are unabsorbed and enter the colon decreasing both water and electrolyte absorption. This limits the available bile salt production by the liver, thus preventing fatty solubilization and absorption in the jejunum. This leads to increased fatty acid in the small bowel lumen which forms calcium soaps, decreasing the amount of calcium available to complex with oxalate. The resulting increase in free oxalate in the bowel leads to hyper-absorption. In addition, the bile acid load in the colon results in increased permeability of free oxalate leading to subsequent hyperoxaluria. These factors result in steatorrhea and secretory diarrhea and urolithiasis. Lack of fat absorption may result in deficiency of the fat=soluble Vitamins A and D.

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1. The medication associated with an increased incidence of renal insufficiency in patients with either bilateral renal artery stenosis or renal artery stenosis in a solitary kidney is:
A. hydrochlorothiazide.
B. doxazosin.
C. propranolol.
D. lisinopril.
E. furosemide.
ANSWER=D
Lisinopril causes a pharmacologic blockade of the renin-angiotensin system. Glomerular capillary hydraulic pressure is determined by the balance between afferent and efferent vascular tone. Efferent arteriolar constriction serves to maintain an effective filtration pressure and glomerular filtration rate when renal arterial perfusion pressure is reduced. In bilateral renal artery stenosis or in renal artery stenosis of a solitary kidney, settings in which total renal blood flow is fixed, failure to autoregulate filtration rate would lead to elevations of the BUN and creatinine. Since evidence suggests that the renin-angiotensin system is responsible for this autoregulation, blockade by captopril would lead to transient renal insufficiency. None of the other drugs listed would produce this effect.

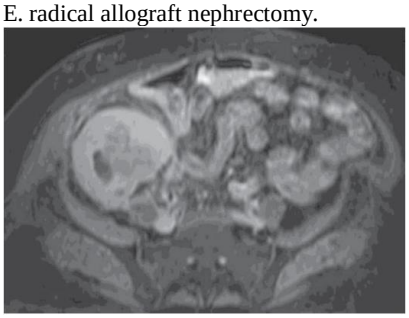
2. A 45-year-old African-American man has a one-year history of progressive irritative voiding symptoms and general malaise. Urinalysis shows 15-20 WBC and 5 RBC/hpf. Urinary cytologies are negative. The serum creatinine is 4.5 mg/dl. Cystoscopy reveals an elongated urethra and inflammatory changes within the bladder. CT scan demonstrates bilateral hydronephrosis and encasement of the bladder, rectum, and both ureters by tissue that has negative Hounsfield units. The next step is:
A. high dose steroid therapy.
B. CIC.
C. ileal conduit.
D. ureterolysis.
E. bilateral nephrostomy tubes.
ANSWER=E
This patient has an enterovesical fistula due to Crohn's disease. In this disorder, the bladder is indented on the right lateral and/or anterior aspect and air can be seen in the bladder in 90% of cases on CT scan. Carcinoma of the sigmoid colon could cause this picture but the left wall of the bladder would be indented. Carcinoma of the bladder rarely causes enterovesical fistulae. Emphysematous cystitis is a generalized disease involving the entire bladder wall. Clinically significant diverticulitis is unlikely to occur at this patient's age.

3. A pelvic CT scan in a 34-year-old woman with recurrent UTIs reveals air in the bladder, focal bladder wall thickening, and indentation of the right lateral bladder wall. The most likely diagnosis is:
A. carcinoma of the sigmoid colon.
B. Crohn's disease.
C. carcinoma of the bladder.
D. diverticulitis.
E. emphysematous cystitis.
ANSWER=B
This patient has an enterovesical fistula due to Crohn's disease. In this disorder, the bladder is indented on the right lateral and/or anterior aspect and air can be seen in the bladder in 90% of cases on CT scan. Carcinoma of the sigmoid colon could cause this picture but the left wall of the bladder would be indented. Carcinoma of the bladder rarely causes enterovesical fistulae. Emphysematous cystitis is a generalized disease involving the entire bladder wall. Clinically significant diverticulitis is unlikely to occur at this patient's age.

4. A 74-year-old woman has symptomatic stress incontinence and detrusor overactivity, but would like to avoid surgery. The best pharmacologic approach is:
A. oxybutynin.
B. bethanechol.
C. imipramine.
D. terazosin.
E. ephedrine.
ANSWER=C
Imipramine has both a strong direct inhibitory action on bladder smooth muscle and a stimulant effect on the bladder outlet. The net result is that it promotes urinary storage by preventing detrusor overactivity and increasing urethral resistance. Phenylpropanolamine, phenylephrine, and ephedrine are sympathomimetic agents. The net result of alpha-adrenergic stimulation is an increase in the resting urethral pressure. On a theoretic basis this should enhance continence due to sphincter abnormalities, but there is no effect on detrusor overactivity. Oxybutynin has antimuscarinic and smooth muscle relaxant effects and has no role in the treatment of stress incontinence. Terazosin would exacerbate this patient's stress incontinence. Bethanechol is a cholinomimetic and would be expected to increase or aggravate detrusor overactivity.

5. The best test to diagnose acute bacterial cystitis is:
A. nitrite test.
B. microscopy.
C. leukocyte esterase test.
D. streak plate culture.
E. pour plate culture.
ANSWER=B
Microscopic examination of the urine is the most rapid and inexpensive means to diagnose UTIs and determine the response to therapy. It provides useful information concerning the likely invaders and whether cultures and susceptibility tests might be needed. The urine may be examined with or without staining and with or without centrifugation, depending on the expertise of the examiner. Unstained specimens are useful for rapid diagnosis. Gram stains provide more reliable information about the potential pathogen.

6. A 71-year-old woman develops a mass in the allograft two years after renal transplant. Needle biopsy of the mass reveals a large B cell lymphoma. Representative images from the MRI scan are shown in exhibits 1 and 2. The next step is:
A. reduce immunosuppression.
B. administer chemotherapy.
C. allograft irradiation.
D. subcapsular allograft nephrectomy.
E. radical allograft nephrectomy.



ANSWER=A
Post-transplant lymphomas are most commonly non-Hodgkin and associated with Epstein-Barr virus infection. The reported incidence ranges from 0.8% to 15%, and varies with the type of immunosuppression utilized. These tumors may respond to drastic reduction or withdrawal of immunosuppression. Standard chemotherapy and irradiation are not generally effective and may exaggerate the degree of immune compromise. Treatment with anti-viral medications such as gancyclovir may be beneficial. Nephrectomy may be necessary, but is not the initial treatment.

7. The renal structure best preserved in the presence of obstruction is the:
A. glomerulus.
B. proximal tubule.
C. loop of Henle.
D. distal tubule.
E. collecting duct.
ANSWER=A
Glomerular changes are the last to occur with hydronephrosis. With long term obstruction, other more distal components of the kidney are destroyed first.

8. The urine marker most specific for interstitial cystitis is:
A. IL-6.
B. glycosaminoglycan.
C. anti-proliferative factor.
D. hyaluronate.
E. histamine.

ANSWER=C
Recently, a nonapeptide, termed the anti-proliferative factor, was found to be the best discriminator of all the markers tested to discriminate between interstitial cystitis and normal controls. Future strategies at diagnosing and treating interstitial cystitis may revolve around this unique molecule.

9. A 57-year-old man undergoes a left radical nephrectomy for renal cell cancer. Postoperatively, he has a prolonged ileus with nausea and vomiting and persistent abdominal pain radiating to the back. There is serous drainage from the wound. Abdominal ultrasound shows a large, left sided retroperitoneal fluid collection. In addition to percutaneous drainage, the next step is:
A. analysis of wound fluid for pH and amylase.
B. analysis of wound fluid for creatinine and BUN.
C. surgical exploration.
D. medium chain triglyceride, low fat diet.
E. gallium scan.
ANSWER=A
An unrecognized injury to the pancreas may result in a pancreatic fistula. These are usually accompanied by symptoms of pancreatitis with wound drainage of fluid with a high pH and amylase content. Radiologic studies will usually show fluid in the retroperitoneum. When drained adequately, the tract will usually heal spontaneously, but hyperalimentation may be required. Surgical exploration is not yet indicated. A medium chain triglyceride, low fat diet would be useful in the setting of chylous ascites which is characterized by milky fluid high in fat content.

10. In patients with organic erectile dysfunction, the best response to sildenafil citrate is achieved in those with:
A. vascular disease.
B. prior radical prostatectomy.
C. diabetes mellitus.
D. prior TURP.
E. spinal cord injury.
ANSWER=E
Improved erections with sildenafil treatment were noted in 70% of men with organic erectile dysfunction and in over 80% of men with psychogenic erectile dysfunction. When the response is stratified by specific disease states, the best response rates are noted in the spinal cord injury group (83%). The response rates for the other groups range from 50-70%.

11. A 38-year-old man has recurrent calcium phosphate stones. 24-hour urine collection reveals pH 6.8 with hypercalciuria and hypocitraturia. Serum chemistries reveal hypokalemia and hyperchloremia. The diagnosis is:
A. laxative abuse.
B. hyperuricosuria.
C. dietary oxalate.
D. distal RTA.
E. primary hyperparathyroidism.
ANSWER=D
The mechanistic defect in type 1, or distal renal tubular acidosis is the inability of the distal nephron to maintain a proton gradient between tubular fluid and serum. Hallmarks of distal renal tubular acidosis are a hypokalemic, hyperchloremic non-anion gap metabolic acidosis with a urinary pH consistently above 6. Up to 70% of adults with distal renal tubular acidosis have kidney stones, with the most frequent composition calcium phosphate, although oxalate and struvite stones are also observed. Approximately 80% of patients are women. Stone formation results from hypercalciuria, hypocitraturia and high urinary pH.

12. A 74-year-old man with a Studer ileal neobladder develops TCC of the proximal urethra three years post-cystectomy. A metastatic evaluation is negative. The next step is:
A. BCG instillation in the urethra and neobladder.
B. urethrectomy and transverse colon loop construction.
C. urethral laser fulguration.
D. urethrectomy and continent cutaneous diversion.
E. urethrectomy and use afferent limb for cutaneous diversion.
ANSWER=E
Urethral recurrence after neobladder is an uncommon but troublesome complication best treated with urethrectomy and some form of urinary diversion. The Studer neobladder affords a reasonable solution to this problem since the non-intussuscepted afferent limb may be detached from the neobladder and converted to a standard ileal loop. A transverse colon conduit would require ureteral reimplantation and continent cutaneous diversion while an operation would have a greater complication rate in an older, previously operated upon patient. Local therapy is inadequate.

13. A distal urethral perforation occurs during insertion of a malleable penile prosthesis. The contralateral cylinder has not been placed. The next step is:
A. place urethral catheter and complete the implantation.
B. repair urethra and implant the contralateral prosthesis.
C. repair urethra and place a suprapubic tube only.
D. repair urethra, proceed with implantation, and place a suprapubic tube.
E. place urethral catheter and terminate the procedure.
ANSWER=E
If urethral perforation occurs during dilation, it is best to abandon the procedure, divert the urine with a urethral catheter, and return at a later date. If the contralateral prosthesis has already been placed and there is no septal perforation, then it may be left in place. The urine should be diverted. Urethral repair would be difficult and is unnecessary.

14. A 34-year-old man passed a second calcium oxalate stone after hydration and a diet low in sodium and protein. Serum calcium, PTH and urinary phosphorus are normal. 24- hour urine collection reveals hypercalciuria, which remains elevated after one week of a 400 mg calcium and 100 mEq/l sodium diet. The next step is:
A. restrict calcium.
B. restrict oxalate.
C. Vitamin D.
D. allopurinol.
E. thiazide and potassium citrate.
ANSWER=E
Absorptive hypercalciuria may be dietary independent, dietary dependent or secondary to a phosphate renal leak. While patients with dietary dependent hypercalciuria may respond to a restricted calcium diet, calcium restriction in patients with dietary independent hypercalciuria may increase urinary oxalate. General recommendations for dietary independent absorptive hypercalciuria include hydration, and restriction of dietary sodium and protein. Thiazides increase calcium resorption in the distal nephron, reducing urinary calcium, and potassium citrate prevents hypokalemia and hypocitraturia. Allopurinol is not indicated unless there is hyperuricosuria.

15. A 55-year-old woman has unilateral hydronephrosis on a follow-up CT urogram two years after radical cystectomy and refluxing colon conduit diversion for a Stage T2, Grade III TCC of the bladder. She received pelvic irradiation 12 years ago for cervical carcinoma. The next step is:
A. loopogram.
B. urinary cytology.
C. loop endoscopy.
D. antegrade nephrostogram.
E. balloon dilation.
ANSWER=B
Early hydronephrosis in this patient suggests recurrent tumor. CT scan and urinary cytology is the best approach to assessing the recurrent cancer in this patient. Urinary cytology from the conduit will be positive with a high grade tumor in greater than 80% of cases and is therefore the next test, as the patient has already had a CT urogram. If urinary cytology is positive, appropriate cancer therapies should be initiated. Assuming the cytology is negative, loopogram, loop endoscopy, and percutaneous nephrostomy can be performed later to aid in surgical planning.

16. The major immunological defect in patients infected with HIV is:
A. loss of B cell function.
B. loss of T killer cell function.
C. loss of T helper cell function.
D. abnormal macrophage function.
E. abnormal cytotoxic T cell function.

ANSWER=C
HIV mainly attacks cells with the CD4 protein on it. In the human, this is the T helper cell. HIV may then infect other cells but it infects the T helper cells first and replicates within it.

17. A twelve-year-old girl has had intermittent abdominal pain for the last six months. She has not menstruated. Pelvic MRI scan is shown in the exhibit. The diagnosis is:
A. vaginal agenesis.
B. imperforate hymen.
C. androgen insensitivity syndrome.
D. ovarian tumor.
E. anterior myelomeningocele.

ANSWER=A
The MRI scan shows a dilated uterus with no evidence of the vaginal canal consistent with vaginal agenesis. In patients with an imperforate hymen the vaginal canal would be dilated. Androgen insensitivity syndrome would show an absent uterus. The MRI scan does not show an ovarian mass or cyst. Anterior myelomeningocele would not effect menstruation and the spine is normal on this patient's MRI scan. Reconstruction can be complex in complete vaginal agenesis especially when the cervix is also absent.

18. A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass with CT attenuation of ^40 Hounsfield units. The next step is:
A. observation.
B. plasma catecholamines.
C. MIBG scan.
D. right adrenalectomy.
E. morning serum Cortisol.
ANSWER=A
A mass with Hounsfield units between negative 30 and negative 140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required. As the tumor is benign and it carries no increased risk of spontaneous hemorrhage, no additional radiologic or clinical follow-up is required.

19. In the intact (noncastrate) man, estrogens inhibit prostatic carcinoma by acting primarily on the:
A. testis.
B. anterior pituitary.
C. prostate.
D. adrenal.
E. posterior pituitary.
ANSWER=B
The principal effect of estrogens is the suppression of LH released from the pituitary, but they also increase the synthesis of sex hormone binding globulin in the liver, thereby, decreasing the amount of bioavailable testosterone. The effect at the level of the anterior pituitary is one of interference with the normal negative feedback mechanism.

20. A 32-year-old infertile man with hyperthyroidism has two semen analyses with volumes of 2.2 and 2.5 ml, densities of 5.3 and 7.8 million/ml, and motilities of 48% and 56%, respectively. Serum testosterone is 280 ng/dl (normal 300-1000 ng/dl). Estradiol, LH, FSH, and prolactin are normal. The next step is:
A. repeat semen analysis with post-ejaculatory urinalysis.
B. serum albumin and sex hormone binding globulin.
C. TRUS.
D. clomiphene citrate 25 mg daily.
E. hCG 5000 units twice weekly.
ANSWER=B
Conditions that increase sex hormone binding globulin levels include anorexia, hyperthyroidism, and cirrhosis. Men with these diseases may have normal bioavailable testosterone with decreased total testosterone. Common clinically available assays for free testosterone are inaccurate, and in the absence of an equilibrium dialysis assay for free testosterone, bioavailable testosterone is best calculated from serum albumin. The semen analyses reveal normal volumes, near normal motilities and low sperm densities. With normal volumes, retrograde ejaculation and ejaculatory ductal obstruction are unlikely, and postejaculatory urinalysis and TRUS are not indicated. While both clomiphene citrate and hCG will increase serum testosterone levels, clomiphene citrate is the best initial therapy due to the cost of hCG administration. Prior to therapy, accurate assessment of bioavailable testosterone is necessary in a patient with comorbidities that may alter sex horomone binding globulin.

21. A 21-year-old man who underwent inguinal orchiectomy for a pure seminoma of the right testis has an 11 cm retroperitoneal mass. Serum beta-hCG and AFP are normal. Following three cycles of bleomycin, etoposide, cisplatin chemotherapy (BEP), repeat CT scan demonstrates a residual 2 cm mass in the inter-aortocaval region. A chest CT scan is negative, and tumor markers remain normal. The next step is:
A. local excision of the mass.
B. RPLND.
C. observation.
D. salvage chemotherapy.
E. retroperitoneal radiation.
ANSWER=C
Small (< 3 cm) residual masses after chemotherapy for advanced seminoma rarely (< 10%) contain residual viable tumor. Moreover, surgical resection is technically difficult due to severe fibrosis, and often incomplete. The recommended management for this situation is observation with serial physical exam, serum markers, and CT scans. Recently, it has been suggested the PET scanning can aid in determining if surgical resection of a post-chemotherapy retroperitoneal mass is indicated in seminoma patients. This management should be distinguished from individuals with mixed germ cell tumors or non-seminomatous germ cell tumors in whom RPLND is indicated for the vast majority of residual masses within the retroperitoneum.

22. When comparing prostatic secretions to those of the seminal vesicles, one would expect the prostatic secretions to exhibit: Citrate Level &amp Fructose Level
A. higher lower
B. higher higher
C. lower lower
D. lower similar
E. similar lower
ANSWER=A
The prostate forms tremendous amounts of citric acid, almost 100 times higher than other soft tissues. The secretory epithelium of the prostate has a special metabolic ability to form citrate from aspartic acid and glucose. Its role in normal prostatic metabolism or reproduction is unknown. Similarly, the seminal vesicles have an increased capacity for fructose production. This production of fructose is the product of glucose metabolism by aldose reduction to sorbitol and a ketone reduction to form fructose.

23. All patients with recurrent calcium oxalate stones should restrict consumption of:
A. calcium.
B. sodium.
C. citrus fruit.
D. potassium.
E. pyridoxine.
ANSWER=B
Medical therapy to prevent stone recurrence is indicated in patients with recurrent urolithiasis and first episode urolithiasis associated with a high risk of recurrence, e.g., family history, gout, chronic UTI's, nephrocalcinosis and bone/GI disease. High oral fluid intake with restriction of protein and sodium are the cornerstones of therapy. Dietary calcium restriction is inappropriate and may cause

osteoporosis. Increased dietary citrus fruits, and natural fiber cereals are recommended.

24. A 45-year-old woman has chronic indwelling ureteral stents for bilateral ureteral strictures from radiation therapy for cervical carcinoma. During stent exchange, brisk, bloody efflux occurs upon right ureteral stent removal. After replacing the stent, the next step is:
A. observation.
B. abdominal and pelvic arteriogram.
C. abdominal and pelvic CT scan.
D. immediate open exploration.
E. nephrectomy.
ANSWER=B
Ureteroarterial fistulas are rare with a reported mortality of nearly 40%. Thus, observation is not appropriate. Risk factors associated with the development of ureteroarterial fistulas include pelvic surgery, pelvic malignancy, pelvic irradiation, pelvic vascular disease and chronic ureteral intubation. Diagnosis is difficult in the absence of active bleeding. Despite the hemorrhage that accompanies these lesions, standard arteriography is frequently falsely negative. Still, arteriography may establish the diagnosis and then the fistula can be occluded with common iliac artery embolization followed by arterial bypass grafting. Provocative arteriography has been reported to demonstrate the fistula in almost all of cases. When clinical suspicion remains strong despite a negative arteriogram, exploratory laparotomy may be necessary to confirm the diagnosis and treat the condition. Immediate exploration is ill advised without a clear etiology of the bleeding, which will be poorly assessed with CT imaging. Nephrectomy is not indicated as the kidney is not the source of bleeding

25. A 75-year-old woman has bothersome urinary incontinence requiring the use of 2-3 diapers per day. Urinalysis is negative and the PVR is 150 ml. Physical examination demonstrates good anterior vaginal support and pressure-flow urodynamics reveals low amplitude detrusor overactivity and no evidence of stress incontinence. The next step is:
A. cystoscopy.
B. antimuscarinics.
C. timed voiding.
D. CIC.
E. sacral neuromodulation.
ANSWER=C
This patient has urinary incontinence secondary to detrusor overactivity. Urodynamics suggest a component of impaired detrusor contractility as her detrusor contraction pressures are low and the PVR is high. The best initial treatment is prompted voiding with the goal of having the patient void prior to one of the involuntary contractions. Antimuscarinics should probably not be used in this situation without CIC since it will likely increase the PVR. When possible, CIC should be avoided in these settings because it adds to the workload of the caregivers. An indwelling catheter is also to be avoided because of long term risks of infection, stone, urethral

26. The clinical syndrome of septic shock is primarily caused by:
A. intact bacteria.
B. bacterial cystoplasmic contents.
C. bacterial cell wall components.
D. exotoxins.
E. autologous mediators.
ANSWER=C
The exotoxins produced by some bacteria can initiate septic shock, but in most cases the bacteria cell wall components are primarily responsible for the development of septic shock. Bacterial cell wall components activate numerous humoral pathways and macrophages and other cells involved in the inflammatory process. The main initiator of gram-negative bacterial septic shock is endotoxin, an lipo-polysaccharide component of the bacterial outer membrane. Circulating endotoxin may be a predictor of poor clinical outcome, but the levels of endotoxin required to trigger septic shock vary greatly.

27. A 60-year-old man with squamous cell carcinoma of the penis invading the right corpus cavernosum undergoes partial penectomy. After six weeks of cephalexin, a 3.5 cm right inguinal lymph node has decreased in size to 2.0 cm. Pelvic CT scan is normal. The next step is:
A. reevaluation in three months.
B. needle aspiration of the suspicious node.
C. sentinel node biopsy.
D. bilateral inguinal node dissection.
E. right inguinal node dissection.
ANSWER=D
The patient has a Stage II penile cancer with invasion of the corpora that is associated with a much higher incidence of positive lymph nodes. Although the lymph node has decreased in size, it is still palpable after six weeks and deserves excision. Since this patient is at high risk for nodal disease, neither a negative needle aspiration nor a negative sentinel node biopsy should dissuade one from lymphadenectomy. Among patients found to have unilateral positive groin nodes, a bilateral lymphadenectomy is indicated due to the high rate of bilateral disease. By comparison, patients who present with unilateral adenopathy beyond one year are treated with ipsilateral lymphadenectomy.

28. A 42-year-old woman has crampy abdominal pain three months after undergoing a continent cutaneous urinary diversion. She is afebrile and has a WBC of 7500. Her abdomen is mildly distended, diffusely tender, and bowel sounds are present. KUB reveals nonspecific small and large bowel gas patterns. The next step is:
A. I.V. fluids and NG suction.
B. exploratory laparotomy.
C. pouchogram.
D. CT urogram.
E. pouch catheterization.
ANSWER=E
Early after continent urinary diversion, many patients misinterpret distension of the pouch due to urine and mucus as diffuse abdominal pain. This patient's KUB, normal WBC, normal bowel sounds, and lack of fever do not suggest obstruction or leakage from the bowel reanastomosis or the urinary pouch. The first and simplest measure is to catheterize and drain the pouch to determine if the symptoms are relieved. Only if the pain persists are some or all of the other measures necessary to exclude other postoperative complications.

29. A 56-year-old woman undergoes PCNL for a staghorn calculus. Eight days later she presents to the emergency room with sudden onset gross hematuria and hypotension. Following fluid resuscitation, the next step is:
A. CT scan.
B. renal angiography.
C. cystoscopy with retrograde pyelography.
D. urethroscopy.
E. exploration of nephrostomy tract.
ANSWER=B
This is a typical clinical presentation of delayed hemorrhage from vascular pseudoaneurysm owing to arterial injury during PCNL. A similar injury can occur during partial nephrectomy. The reported incidence of serious arterial injuries in association with percutaneous renal surgery, including arteriovenous fistulas, pseudoaneurysms, and lacerations, ranges from 0.9% to 3%. The diagnosis is presumptive, and therefore therapeutic rather than diagnostic interventions are indicated. Most patients require superselective embolization of bleeding arteries under angiographic control, which is very effective at controlling hemorrhage and preserving renal function. The small number of patients whose bleeding is refractory to embolization may require surgical exploration.

30. Routine staining of a bone biopsy from a 60-year-old man with diffuse metastases reveals poorly differentiated adenocarcinoma. The immunohistochemical stain most likely to determine whether the tumor is of prostatic origin is:
A. cytokeratin.
B. prostate specific membrane antigen (PSMA).
C. prostatic acid phosphatase.
D. PSA.
E. alkaline phosphatase.
ANSWER=B
In a study of 184 radical prostatectomies from previously untreated patients, Bostwick et al found intense cytoplasmic epithelial

immunoreactivity for PSMA (prostate specific membrane antigen) in every prostate cancer. The most extensive and intense staining for PSMA was observed in high grade carcinoma (Gleason primary pattern 4 or 5) with immunoreactivity in virtually every cell. Studies have shown that individual cells in poorly differentiated carcinoma produce less PSA than cells in well differentiated and moderately differentiated carcinoma and also normal prostate epithelium.

31. Headache, facial flushing and hypertension during cystoscopy is most commonly seen in patients with:
A. cervical cord lesion.
B. spinal cord injury between T6 and S2.
C. cauda equina injury.
D. multiple sclerosis.
E. reflex sympathetic dystrophy.
ANSWER=A
Autonomic dysreflexia is associated with spinal cord injuries at T6 and higher. Symptoms commonly include palpitations, headache, facial flushing and hypertension. It is caused by stimuli below the level of the spinal cord injury precipitating an exaggerated sympathetic response. Treatment should include immediate removal of the stimulus if possible. Calcium channel blockers, alpha adrenergic antagonists and chlorpromazine can b

32. The C-arm fluoroscopic operational factor resulting in an increased radiation dose to both the patient and operating room personnel is:
A. increasing tube kilovoltage (kVp).
B. increasing tube current (mA).
C. decreasing image intensifier to skin distance.
D. removing the image intensifier grid.
E. increasing the x-ray tube (source) to skin distance.
ANSWER=B
The use of fluoroscopic imaging in urological surgery requires a basic knowledge of radiation protection principles so that the dose to the patient, physician, and ancillary staff can be minimized. It is important to remember that with an increase in patient size the dose rate will be greater and accumulate faster. In terms of manipulating the operational factors in fluoroscopy, there is generally a trade off in terms of image quality and radiation dose. Increasing the tube current results in greater image quality and increased dose to the patient and staff. Increasing the tube kilovoltage diminishes image quality (less contrast) but is usually associated with less radiation dose if the tube current is appropriately reduced. Decreasing the image intensifier to skin distance usually increases image quality depending on focal spot size and decreases the dose to the patient without significantly changing the dose to staff. Removing the grid decreases image quality as well as the radiation dose to patient and staff. Increasing the source to skin distance usually improves image quality and decreases the dose to the patient without significantly changing the dose to staff.

33. A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease. She receives Cortisol and fluorocortisone replacement and two years later has progressive hyperpigmentation. The study most likely to suggest the cause of her hyperpigmentation is a(an):
A. serum Cortisol level.
B. abdominal CT scan.
C. cranial MRI scan.
D. dexamethasone suppression test.
E. urinary 17-hydroxycorticosteroid level.
ANSWER=C
Approximately 10-20% of patients who have bilateral adrenalectomy for Cushing's syndrome later develop pituitary tumors, almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation, headache, and visual disturbances are due to the expanding adenoma that is best seen by cranial MRI. The hyperpigmentation is due to high serum levels of melanocyte stimulating hormone.

34. A 63-year-old man, two years after a successful renal transplant, has an edematous scrotum with a 2 cm nontender erythematous patch. In-situ hybridization on the biopsy tissue is positive for human herpes virus 8. This lesion is most likely:
A. Kaposi's sarcoma.
B. condyloma acuminata.
C. Bowen's disease.
D. posttransplant lymphoproliferative disorder.
E. erythema multiforme.
ANSWER=A
Kaposi's sarcoma is a rare neoplasm of endovascular cells that is seen in men of Mediterranean descent, HIV infected patients, and those on immunosuppression. The lesions are associated with the human herpes virus 8. The lesions are violaceous to light brown. They can cause venous and lymphatic obstruction resulting in local edema.

35. A 36-year-old man on chronic hemodialysis has gynecomastia, diminished libido, erectile dysfunction, and bone pain. The primary etiology is:
A. reduced sex hormone binding globulin.
B. high prolactin.
C. low Cortisol.
D. hyperparathyroidism.
E. elevated estradiol.
ANSWER=B
Hyperprolactinemia is a common result of hemodialysis. Physical signs of this condition include diminished libido, erectile dysfunction, infertility and gynecomastia. Treatment with cabergoline or bromocriptine reverses the osteoporosis and low testosterone improving libido and erectile dysfunction.

36. A 42-year-old man had a right radical nephrectomy two years ago for a Stage T3aNoMx RCC. He now has right hip pain. Bone scan shows intense uptake in the right hip area and plain films of the right femur show a 3.5 cm lytic lesion. The next step is:
A. external beam radiation to the femur.
B. strontium-89.
C. internal fixation of the femur.
D. pain management.
E. systemic immunotherapy.
ANSWER=C
Approximately 50% of patients with multi-organ metastases from renal cell carcinoma exhibit evidence of skeletal involvement. It has been estimated that between 15% and 30% of such skeletal lesions are solitary. Eighty percent of skeletal metastases occur in the axial skeleton, thoracic/lumbar spine, and pelvis. When long bones are involved, only the proximal portions are characteristic targets for metastatic disease. Surgical treatment of bony metastases is indicated for weight-bearing bones with lytic lesions greater than 3 cm. Internal stabilization or replacement of the destroyed periarticular segment often results in significant pain relief and tremendously improves the patient's quality of life.

37. A 72-year-old man is noted to have a large bladder on a CT scan performed for colonic diverticular disease. He has no urinary tract symptoms. His prostate is 30 gm and benign. PVR is 150 ml. A urinalysis is negative. The next step is:
A. observation.
B. alpha-blocker.
C. 5-alpha-reductase inhibitor.
D. 5-alpha-reductase inhibitor and an alpha-blocker.
E. TURP.
ANSWER=A
PVR measurement has significant intra-individual variability and does not correlate well with other signs or symptoms of lower urinary tract dysfunction. The VA Cooperative Study Group demonstrated that PVR does not predict the outcome of surgery and the majority of men with large residual urine volume did not require surgery during the three-year duration of the trial. Men with significant PVRs should be monitored more closely if they elect no therapy. Medical therapy for BPH is indicated in men who have bothersome symptoms that negatively affect quality of life.

38. A 32-year-old man with congenital bilateral absence of the vas deferens desires a biological child. Testing for the cystic fibrosis transmembrane conductance regulator (CFTR) gene is negative. The next step is:
A. test the man's parents for the CFTR gene.
B. proceed with testicular sperm extraction and ICSI.
C. CFTR testing of his wife.

D. proceed with testicular sperm extraction and ICSI and do pre-implantation genetic diagnosis.
E. CFTR testing of the man's sperm.
ANSWER=C
Mutations in the cystic fibrosis transmembrane conductance regulator gene are responsible for a phenotypic spectrum from overt cystic fibrosis to congenital bilateral absence of the vas deferens. Over 1000 CFTR mutations have been identified and only a portion are detected by routine testing. The man should be assumed to be a CFTR carrier, and his wife needs to be tested to determine the risk of cystic fibrosis in their offspring.

39. Deletions of the short arm of chromosome 3 occur most frequently in association with:
A. papillary renal cell carcinoma.
B. angiomyolipoma.
C. renal medullary carcinoma.
D. oncocytoma.
E. clear cell renal cell carcinoma.
ANSWER=E
Deletions of the short arm of chromosome 3 are characteristic of clear cell (conventional type) renal cell carcinomas, which are seen in sporadic cases of renal cell carcinoma and those associated with von Hippel-Lindau disease. The short arm of chromosome 3 is the location of the VHL gene. Type 1 papillary renal cancers are associated with mutations of the c-met protooncogene located on chromosome 7. Type II papillary renal cancers are associated with mutations of the fumarate hydratase gene located on chromosome 1. Oncocytoma can be seen in mutations of the BHD1 gene located on the short arm of chromosome 17.

40. A 48-year-old woman complains of stress incontinence. She denies any symptoms of urge incontinence. On exam she has urethral hypermobility. Videourodynamics confirms the diagnosis of stress incontinence with mobility. Detrusor overactivity is demonstrated at 400 ml with a detrusor contraction of 25 cm H2 0. The best next step is:
A. oxybutynin.
B. pseudoephedrine and oxybutynin.
C. transurethral collagen injection.
D. transvaginal needle suspension.
E. sling procedure.
ANSWER=E
The patient's complaint is stress incontinence. Detrusor overactivity may be asymptomatic and occurs in up to 69% of normal volunteers with ambulatory monitoring. In patients with mixed symptoms when stress symptoms predominate and stress incontinence is objectively demonstrated, surgical repair will alleviate all the symptoms 50-70% of the time. Antimuscarinic therapy may treat her detrusor overactivity but this is not her complaint. Imipramine and pseudoephedrine will improve her stress incontinence but they are not definitive therapy. Transurethral collagen injections are not approved for women with urethral hypermobility. A sling procedure will treat her stress incontinence from her hypermobility and has a 70% chance of alleviating her detrusor overactivity. Transvaginal needle suspensions are inferior to sling procedure for the treatment of stress urinary incontinence.

41. A 43-year-old man has recurrent calcium oxalate stones. Twenty-four hour urine collections show low calcium, magnesium and citrate, and high oxalate. The factor most likely contributing to his stones is:
A. hyperparathyroidism.
B. inflammatory bowel disease.
C. excess Vitamin D intake.
D. excess Vitamin C intake.
E. RTA.
ANSWER=B
The most common cause of hypomagnesuria is inflammatory bowel disease associated with malabsorption. Most patients with hypomagnesuria also have hypocitraturia. This loss of inhibitory or complexing activity of magnesium and citrate is responsible for calcium oxalate crystallization in these patients. It has been suggested that magnesium citrate may be reasonable for the treatment of hypomagnesuric calcium nephrolithiasis. The other disorders listed result in recurrent calcium oxalate stones, but as a result of hypercalciuria rather than hypomagnesuria.

42. The epithelial lining of the distal periurethral prostatic ducts is:
A. stratified.
B. pseudostratified.
C. squamous.
D. transitional.
E. cuboidal.
ANSWER=D
The distal prostatic ducts are lined by transitional epithelium as in the prostatic urethra. Primary TCC of the prostate accounts for 1.5%-4% of all male urethral cancers.

43. A 58-year-old man undergoes urodynamics for the evaluation of severe urinary incontinence following radical prostatectomy. Stress urinary incontinence occurs with a Valsalva maneuver to 40 cm H20. Detrusor pressure prior to the onset of volitional micturition at 400 ml is 3 cm H20. Voiding occurs completely by Valsalva maneuver. PVR is 10 ml. The best long term treatment is:
A. periurethral bulking agent.
B. transperineal bone anchored cadaveric fascial sling.
C. artificial urinary sphincter.
D. sacral neuromodulation.
E. suprapubic tube.
ANSWER=C
Stress incontinence is the most common type of incontinence after radical prostatectomy. Options include artificial urinary sphincter, sling and periurethral bulking agents. Placement of a sling in this individual (resulting in a fixed urethral resistance) carries a risk of urinary retention due to the Valsalva voiding pattern and the use of cadaveric tissue for male sling does not appear to be as efficacious in the long term as synthetic materials. Periurethral bulking agents are unlikely to provide long term relief of stress urinary incontinence in males. A suprapubic tube will not address the sphincteric incontinence. Sacral neuromodulation is unlikely to have any effect on the sphincteric incontinence.

44. The agent that is part of second line therapy for multi-drug resistant genitourinary tuberculosis is:
A. isoniazid.
B. ciprofloxacin.
C. para-aminosalicylate.
D. pyrazinamide.
E. rifampin.
ANSWER=B
Multi-drug resistant tuberculosis is a form of tuberculosis that is resistant to two or more primary drugs, including isoniazid, pyrazinamide, and rifampin. Multi-drug resistant tuberculosis infection results in increased morbidity, mortality and increased drug-treatment costs. Prevalence rates for multi-drug resistance rates (exceeding 5%) are high in the former Soviet Union, the Baltic States and Peru. Recommended second-line treatment for multi-drug resistant tuberculosis consists of at least 5 drugs including a fluoroquinolone (Ciprofloxacin) and an aminoglycoside (streptomycin, amikacin).

45. Twenty-four hours after a newborn circumcision, a 1.5 cm skin separation is noted. The best management is:
A. immediate reapproximation.
B. delayed reapproximation.
C. split thickness skin graft.
D. full thickness skin graft.
E. healing by secondary intention.
ANSWER=E
Minor degrees of separation of circumcision edges are common. Complete separation as described is uncommon. This incision should be considered contaminated in the baby's diaper. Therefore, immediate closure is not recommended. Skin grafts are not indicated because of the contaminated bed and would have a high risk of infection. Since the length of the skin was adequate at the time of circumcision, observation is the best choice. Usually this complication rapidly heals well and nothing further will be necessary. If an undesirable scar develops, it can be revised or grafted electively at a later time.

46. A 55-year-old man with hypertension and erectile dysfunction treated with amlodipine 10 mg and sildenafil 25 mg complains of LUTS and has an International Prostate Symptom Score (IPSS) score of 18. His prostate exam is benign. He opts for alphablocker therapy. He should be instructed to:
A. switch to vardenafil.
B. use tamsulosin 0.4 mg daily at any time.
C. use tamsulosin 0.4 mg daily separated by 4 hours from sildenafil.
D. use tamsulosin 0.4 mg daily separated by 12 hours from sildenafil.
E. decrease amlodipine dose before combining tamsulosin and sildenafil.
ANSWER=B
The use of sildenafil 25 mg has no impact on the type of alpha-blocker used, its dose or the timing in relationship to sildenafil use. Sildenafil doses greater than 25 mg (50 mg or 100 mg), require separation from any alpha-blocker by a period of four hours. Tadalafil may be used at any dose with tamsulosin 0.4 mg. The concerns about hypotension induced by concomitant use of sildenafil and alpha-blockers also pertains to vardenafil.

47. A 32-year-old woman underwent a left PCNL three years ago for a staghorn calculus. Since then she has experienced intermittent left flank pain and episodes of pyelonephritis. An IVP shows a normal right kidney, marked hydronephrosis on the left with a nearly obliterated renal pelvis, and a 2 cm segment of proximal ureteral narrowing. A renogram shows a differential function of 65% of the right and 35% on the left. The best treatment for the left side is:
A. ureterocalicostomy.
B. retrograde endopyelotomy.
C. percutaneous endopyelotomy.
D. pyeloplasty.
E. nephrectomy.
ANSWER=A
Although endopyelotomy (antegrade or retrograde) is generally a good choice for salvage of a failed pyeloplasty, incision through an obliterated or intrarenal pelvis may risk significant renal hemorrhage due to incision into renal parenchyma or hilar vessels. Furthermore, repeat open or laparoscopic pyeloplasty will likely be unsuccessful in the face of an intrarenal pelvis. In this case, ureterocalicostomy is the best choice for re-establishing adequate renal drainage.

48. A 72-year-old man has nausea and nocturia. The following serum values are obtained: BUN 46 mg/dl, creatinine 2.4 mg/dl, sodium 134mEq/l, potassium 6.1mEq/l, chloride 105mEq/l, C 0 2 17mEq/l. The urine pH is 6.5 and a urine culture is negative. These data are most consistent with:
A. Type I RTA.
B. Type II RTA.
C. obstructive uropathy.
D. diuretic abuse.
E. persistent vomiting.
ANSWER=C
This patient has hyperkalemia and metabolic acidosis due to obstructive uropathy. In obstructive uropathy, a syndrome of distal renal tubular acidosis can occur due to decreased excretion of potassium and hydrogen. This leads to hyperkalemia, impaired urinary acidification, and metabolic acidosis. The term Type IV renal tubular acidosis is often applied to this disorder. Diuretic abuse and persistent vomiting would produce a metabolic alkalosis. Types I and II renal tubular acidosis are both associated with hypokalemia.

49. Parasympathetic post-ganglionic neurons are located in the:
A. autonomic chain ganglia.
B. detrusor muscle.
C. dorsal root ganglia.
D. ventral horn of the spinal cord.
E. inferior mesenteric ganglia.
ANSWER=B
Parasympathetic postganglionic neurons in the human are located in the detrusor muscle wall as well as in the pelvic plexus. Patients who have cauda equina or pelvic plexus injuries are neurologically decentralized but may not be completely denervated because of this anatomic arrangement.

50. Optimal treatment for an infertile man with a prolactin-secreting pituitary adenoma is:
A. cabergoline.
B. testosterone.
C. prednisone.
D. radiation therapy.
E. surgical excision.
ANSWER=A
Most patients with prolactin-secreting pituitary adenomas respond well to medical therapy consisting of either bromocriptine or cabergoline, which blocks release of prolactin from the pituitary gland and often causes regression of the tumor. Cabergoline is more frequently used now than bromocriptine because of the lower side effect profile and less frequent dosing schedule. Surgery is reserved for patients who are unable to tolerate medical therapy.

51. A 13-year-old boy is undergoing a laparoscopic colectomy for ulcerative colitis during which the lower half of the left ureter is resected with the colon. The procedure has been converted to an open technique for completion. The next step is:
A. ileal ureter.
B. cutaneous ureterostomy.
C. transureteroureterostomy.
D. auto transplantation and ureteroneocystostomy.
E. nephrectomy.
ANSWER=C
With loss of the distal half of the ureter and the inflammatory process of the ulcerative colitis, a primary anastomosis with a psoas hitch would not be possible. Because of his bowel disease, creating an ileal ureter would not be ideal. A left auto transplantation is possible but not worth the post operative risks. A cutaneous ureterostomy would only be temporizing and require another open procedure. It would be best to perform a transureteroureterostomy. If the left ureter does not reach to the right, the right ureter can be mobilized, passed to the left and reimplanted into the bladder. A nephrectomy should be avoided as the initial management.

52. A 86-year-old man in a nursing home develops urinary incontinence. He has a 30 gm nontender prostate, absent bulbocavernosus reflex, and hard stool on DRE. Urinalysis is normal and a PVR is 80 ml. The next step is:
A. PSA.
B. stool softeners and timed voiding.
C. uroflow.
D. tamsulosin.
E. oxybutynin.
ANSWER=B
The approach to elderly patients with incontinence should be stepped. Transient causes of incontinence should be addressed first. In this case, it would be most appropriate to eliminate constipation. PSA is unnecessary with a normal rectal exam. Absence of the anal reflex is less significant in elderly patients and invasive testing is not necessary if the symptoms resolve with conservative therapy. Muscarinics may make his symptoms worse and could increase the risk of falling.

53. A 24-year-old paraplegic man manages his bladder with CIC. At a routine office visit, he is found to have pyuria and bacteriuria. The strongest indication for antimicrobial therapy is:
A. greater than 10 WBC/hpf.
B. greater than 100,000 CFU/ml on urinary culture.
C. increased urinary leakage between catheterizations.
D. recent decrease in the frequency of his catheterizations.
E. malodorous urine that interferes with routine social activity.
ANSWER=C
Asymptomatic bacteriuria is common in spinal cord injury patients, especially those managed with CIC, and generally does not need to be treated. Symptomatic infections should be treated, but these patients usually do not report the same irritative symptoms as spinal cord intact patients. Symptoms that merit treatment include flank or abdominal discomfort, increased leakage between catheterizations, increased spasticity, and malaise or lethargy. Malodorous urine may be bothersome to the patient but is not an indication for treatment as is increased urinary leakage between catheterizations. The latter indicates a functional impact of the infection while the former is just a social problem. Most patients on CIC will have greater than

100,000 CFU/ml on urinary culture if there is any bacteriuria. Although increasing bladder distention, as might be expected to occur with a decrease in the frequency of catheterization, is a risk factor for UTI in spinal cord injury patients it does not make treatment more or less necessary.

54. Furosemide acts primarily by inhibiting sodium reabsorption in the:
A. collecting duct.
B. proximal tubule.
C. ascending limb of Henle's loop.
D. descending limb of Henle's loop.
E. distal tubule.
ANSWER=C
Furosemide (Lasix) is a loop diuretic. Loop diuretics act mainly by inhibiting the Na+-K+-2CI- cotransport system in the thick ascending limb of Henle's loop. This results in inhibiting sodium reabsorption and produces a solute diuresis.

55. A 25-year-old single man complains of premature ejaculation, with an intravaginal ejaculatory latency time of 30 seconds. He is distressed by this problem. His penile vibration stimulation thresholds are normal. The next step is:
A. psychological counseling.
B. daily fluoxetine.
C. on demand sertraline.
D. daily bupropion.
E. topical lidocaine/prilocaine.
ANSWER=B
The patient is bothered by his symptoms and the very short intravaginal ejaculatory latency time suggests that the patient warrants treatment. The local anesthetic of choice is lidocaine/prilocaine. The absence of a regular partner likely renders sex therapy ineffective. The first line pharmacologic treatment of premature ejaculation is selective serotonin reuptake inhibitors (SSRI). Bupropion is not an SSRI. The use of SSRI is best commenced with daily use and it appears that fluoxetine, sertraline and paroxetine are of approximately similar efficacies. While there is not much literature on on-demand use of SSRI it is generally believed that the daily dosing is more effective.

56. An 18-year-old man injured in a MVC has blood at the external urethral meatus. An indication for urethral catheter drainage of the bladder, without further surgical exploration, is:
A. retrograde urethrogram demonstrating disruption of the penile urethra.
B. retrograde urethrogram demonstrating partial tear of the posterior urethra.
C. extraperitoneal bladder perforation in association with pelvic fracture requiring surgical repair.
D. extraperitoneal bladder perforation with bone fragment penetrating the bladder wall.
E. intraperitoneal bladder perforation with only microscopic hematuria.
ANSWER=B
Direct injury to the penile urethra is usually best managed with primary surgical repair. In contrast, partial injuries to the posterior urethra will usually heal well over a urethral catheter if one can be placed atraumatically. While extraperitoneal bladder injuries can usually be managed by urethral catheter drainage of the bladder, indications for primary surgical closure of the bladder and placement of a suprapubic cystostomy include co-existing open pelvic fracture, patients undergoing laparotomy or open surgical repair of pelvic fracture, rectal perforation, and bone fragment projecting into the bladder. Intraperitoneal ruptures require primary surgical exploration and repair.

57. A 32-week-male fetus has bilateral hydroureteronephrosis and a thick-walled bladder on ultrasound. The most important information needed to determine further prenatal care is:
A. renal parenchymal echogenicity.
B. presence and timing of onset of oligohydramnios.
C. degree of bladder dilation and thickening.
D. urine electrolytes and beta-2 microglobulin levels.
E. presence of a perinephric urinoma.
ANSWER=B
The most likely diagnosis in this fetus is posterior urethral valves based upon male sex, bilateral hydronephrosis, and a thick walled bladder. The clinical outcome of a child with severe posterior urethral valves is most specifically predicted by the presence or absence of oligohydramnios and when the onset of oligohydramnios was noted to occur. Increased renal echogenicity alone is not predictive, although in the setting of oligohydramnios, it is a poor prognostic indicator. Bladder dilation is not a good prognostic indicator. Urinary electrolytes have been shown to be useful as an indicator of renal salvageability only in the setting of oligohydramnios and in early gestation (18 to 24 weeks). A perinephric urinoma does not predict a poor outcome..

58. A 68-year-old man with bothersome voiding dysfunction completes a voiding diary revealing 12 voids in 24 hours with volumes ranging from 30 ml to 150 ml, nocturia x 3, and one episode of incontinence. PVR is 50 ml. PSA is 1.8 ng/ml. Non-invasive uroflowmetry reveals a flattened pattern with a peak flow of 6 ml/sec. His condition is best described as:
A. BPH.
B. bladder outlet obstruction.
C. detrusor overactivity.
D. detrusor underactivity.
E. LUTS.
ANSWER=E
BPH is a histological diagnosis. This patient has not had a biopsy. Bladder outlet obstruction is a urodynamic diagnosis made on the basis of the relationship between pressure and flow. The poor flow rate in this case may be due to either detrusor underactivity or bladder outlet obstruction and is not diagnostic of either entity. Detrusor overactivity and detrusor underactivity are a urodynamic diagnosis that cannot be made in the absence of a pressure- flow urodynamic study. LUTS is a generic term describing lower urinary tract symptoms and does not imply an underlying pathology or pathophysiology.

59. A 34-year-old woman with recurrent, uncomplicated bacterial cystitis has a past history of multiple episodes of fungal vaginitis. The optimal agent for low-dose, long-term antimicrobial prophylaxis is:
A. norfloxacin.
B. trimethoprim.
C. trimethoprim-sulfamethoxazole.
D. ciprofloxacin.
E. nitrofurantoin.
ANSWER=E
Premenopausal women with recurrent cystitis (> 3 infections/year) can be managed with continuous antimicrobial prophylaxis, post-coital prophylaxis or patient-administered selftreatment. Many antibiotics are used for continuous prophylaxis. Trimethoprim, trimethoprim- sulfamethoxazole and fluoroquinolones work by reducing vaginal colonization with uropathogens while other antibiotics, e.g., nitrofurantoin, cephalexin, sulfa, work by intermittently sterilizing the urine. Drugs in the former category increase the risk of fungal vaginitis because of their effect on the commensal bacterial (uropathogens, lactobacilli) in the vagina.

60. A one-month-old girl has massive right hydronephrosis secondary to UPJ obstruction. The left kidney appears normal. Isotope renography shows relative renal function of 85% on the left and 15% on the right. The next step is:
A. right nephrectomy.
B. right percutaneous nephrostomy.
C. repeat renography in three months.
D. right pyeloplasty.
E. right cutaneous pyelostomy.
ANSWER=D
The immediate repair of a UPJ obstruction is advised in this child because the function in the right kidney is significantly decreased. Neither delay nor removal of this kidney is appropriate since the functional capacity may improve after relief of obstruction, particularly in this age group. Temporary nonintubated cutaneous diversion may provide an acceptable alternative in the very ill or septic infant (not the case here). Prolonged nephrostomy drainage is not recommended in young infants.

61. A 67-year-old woman underwent an uncomplicated transobturator midurethral monofilament polypropylene sling. One week later, she is asymptomatic but on physical examination there is a partial wound dehiscence with a 0.5 cm segment of exposed polypropylene sling material at the base of the wound. The next step is:
A. topical estrogen cream and re-evaluation in several weeks.
B. mobilization of vaginal flaps, vaginal wound closure and Penrose drain.
C. explantation of the exposed sling material and vaginal wound closure.
D. explantation of the entire sling.
E. explantation of the sling and placement of an autologous pubovaginal fascial sling.
ANSWER=A
A small wound dehiscence is likely to heal over time. Since the patient is asymptomatic, immediate surgical intervention is not necessary. Monofilament slings with large pore sizes permit in-growth of fibroblasts and intercalation of macrophages that promote healing. Topical estrogen cream may be beneficial in this postmenopausal female in improving tissue quality and healing. Explantation of the sling is not indicated at this juncture. Timing of primary wound closure is controversial, but drains are not recommended.

62. Luteinizing hormone (LH) timed intrauterine insemination would most likely benefit subfertile couples with:
A. significant levels of male antisperm antibodies.
B. severe oligospermia.
C. cervical stenosis and low semen volume.
D. asthenospermia.
E. cervical incompetence.
ANSWER=C
The cervical mucus is a major barrier to sperm that are poorly motile in the oligospermic man. From a naive viewpoint it would seem that bypassing this biological barrier by intrauterine insemination would be highly successful form of therapy for the subfertile man. Motility and transport though the cervical mucus represent only a small portion of the many complex functions of which sperm must be capable for fertilization and early embryonic development to occur. Therefore, it is not surprising that intrauterine insemination is not effective universally in couples with male factor infertility. The placement of sperm directly into the uterine cavity, carefully timed to ovulation, will not compensate for acrosomal defects and abnormalities of sperm-egg interaction, which are common in men with oligospermia. Nevertheless, sperm processing and intrauterine insemination can have an appropriate role in the management of carefully selected subfertile couples. It is an ideal form of therapy for cervical factor infertility and for men with retrograde ejaculation and significant semen volume abnormalities. Men with significant levels of antisperm antibodies and fewer than 2 million motile sperm after washing are not likely to achieve conception with intrauterine insemination.

63. An infant has the prenatal diagnosis of a solid abdominal mass that spontaneously regresses on serial postnatal ultrasounds during the first year of life. The most likely diagnosis is:
A. mesoblastic nephroma.
B. Wilms' tumor.
C. neuroblastoma.
D. sacrococcygeal teratoma.
E. retroperitoneal yolk sac tumor.
ANSWER=C
Of the tumors listed, neuroblastoma is the only one that is frequently associated with spontaneous regression. Autopsy studies show a much higher rate of incidental neuroblastoma than is seen clinically. Because of the regression (or maturation to ganglioneuroma) some infants with neuroblastoma should not be treated. This is particularly true for those with Stage IV-S, characterized by multiple sites of metastases, including bone marrow, liver and/or skin lesions.

64. The coagulation of human semen is dependent on:
A. seminal vesicle-specific antigen.
B. PSA.
C. calcium.
D. fibrinogen.
E. factor XII.
ANSWER=A
The major clotting protein in semen has been termed semenogelin, which has been shown to be the seminal vesicle-specific antigen. These clotted proteins serve as the substrate for PSA which liquefies the semen. Calcium-binding substances, such as sodium citrate, and heparin do not inhibit the coagulation. Blood clotting proteins such as prothrombin, fibrinogen, and factor XII are not present in semen.

65. A 38-year-old woman has severe right flank pain. She is afebrile and urinalysis demonstrates pyuria and microhematuria. A noncontrast CT scan demonstrates right perinephric fluid and right hydroureteronephrosis down to a 3 mm distal ureteral stone. The next step is:
A. ureteral stent.
B. percutaneous nephrostomy drainage.
C. percutaneous drainage of perinephric fluid.
D. ureteroscopic stone removal.
E. medical management.
ANSWER=E
Forniceal extravasation is usually associated with a small distal ureteral calculus. These patients should be treated no differently than others with ureteral stones. Intervention should be undertaken when there is an associated fever, nausea/vomiting, or unrelenting pain. Otherwise, conservative observation is appropriate. The AUA guidelines clearly state that a period of observation awaiting spontaneous passage is appropriate.

66. A one-week-old boy is observed to void in small amounts with 5 to 10 minute intervals between several voiding episodes. He is otherwise well. The next step is:
A. bladder and kidney ultrasound.
B. VCUG.
C. check PVR.
D. observation.
E. retrograde urethrogram.
ANSWER=D
Normal infantile voiding patterns often include frequent small volume, and incomplete voids. Using serial ultrasound, documenting the time and number of voids in neonates and carefully weighing their diapers has confirmed these findings. In the absence of other clinical findings, no specific evaluation should be undertaken. Renal and bladder ultrasound, although non- invasive, is not indicated. The remaining tests are invasive and not indicated in a normal infant.

67. A 43-year-old woman undergoes placement of a sacral neuromodulator with implantable pulse generator. Three months following placement she reports pain at the generator site that does not improve after the device is turned off. Physical exam is unremarkable. The next step is:
A. reprogram the device at alternate settings.
B. explantation of entire device.
C. local exploration of implantable generator.
D. relocation of generator to alternate site.
E. treatment with amoxicillin or cephalexin for one week and re-evaluate.
ANSWER=C
Since turning off the device had no impact on pain, reprogramming it is unlikely to be of any benefit. The device may not need to be completely explanted at this point. A local exploration may obviate a seroma, or perhaps improper location. Relocation would be recommended only if local exploration revealed no abnormalities, and the location was felt to be causative.

68. The optimal dose of 30% iodinated contrast material for an intraoperative IVP in a nonobese adult patient suspected of having renal trauma is:
A. 0.5 ml/kg.
B. 1.0 ml/kg.
C. 2.0 ml/kg.
D. 2.5 ml/kg.
E. 3.0 ml/kg.
ANSWER=C
Intraoperative IVP is performed in unstable trauma patients who can't undergo a radiographic evaluation in the emergency room. A film is taken ten minutes after contrast is administered

intravenously. A 2 ml/kg dose of contrast material is recommended for this study.

69. A 17-year-old girl with neurogenic bladder secondary to meningomyelocele had an artificial urinary sphincter placed two years ago. At that time, her detrusor LPP was 15 cm H2O at bladder capacity of 350 ml. Two years later, she is continent, but renal ultrasonography shows new moderate bilateral hydronephrosis. The most likely etiology is:
A. sphincter erosion.
B. ureterovesical junction obstruction due to the sphincter.
C. decreased bladder compliance.
D. excessive sphincter cuff pressure.
E. changing neurologic lesion.
ANSWER=C
New hydronephrosis after artificial urinary sphincter (AUS) placement is a well described complication. It is usually due to decreased bladder compliance that was unrecognized at the time of AUS placement or has developed subsequent to and as a result of the outlet resistance from the AUS. It is essential to monitor bladder compliance following AUS placement. A changing neurologic lesion (such as tethered cord) is unlikely to occur in a patient who has completed linear growth.

70. A 72-year-old man on LH-RH agonist therapy reports difficulty voiding 30 months following brachytherapy for localized prostate cancer, and undergoes TURP. Before brachytherapy, his prostate volume was 30 gm, his PSA was 5.2 ng/ml and International Prostate Symptom Score (IPSS) was 7. The factor most likely to correlate with incontinence following TURP is:
A. pre-operative PSA.
B. prostate volume.
C. treatment with LH-RH agonist therapy.
D. time since brachytherapy.
E. preoperative IPSS.
ANSWER=D
Rates of incontinence can be high in patients undergoing TURP following brachytherapy (at least 18%). The presence of obstructive symptoms at the time of TURP, and a period of at least two years since brachytherapy are associated with a greater likelihood of incontinence. Treatment with Lupron, prostate size, pretreatment IPSS, dosage of brachytherapy, and pretreatment PSA do not seem to affect the likelihood of incontinence.

71. In patients with uric acid stones, the primary underlying metabolic defect is:
A. hyperuricosuria.
B. hyperuricemia.
C. low urine pH.
D. low urine volume.
E. RTA.
ANSWER=C
Although hyperuricosuria, low urine pH and low urine volume are all important contributors to uric acid stone formation, a persistently acid urine (pH < 5.5) is the most important determining factor for uric acid stones. Although hyperuricemia is the hallmark of primary gout, not all patients with uric acid stones have either hyperuricemia or gout. Renal tubular acidosis is associated with high, rather than low, urine pH, hyperchloremia, and hypokalemia.

72. A three-year-old boy lost one-half of his scrotal skin after a dog attack two hours ago. His testicles, penis and urethra are spared. Best management includes antibiotics, debridement, and:
A. split thickness skin graft.
B. full thickness skin graft.
C. placement of testicles in the thigh.
D. scrotal closure with drainage.
E. secondary scrotal closure.
ANSWER=D
Skin grafts and placement of the testicles in the thigh are seldom required when half of the scrotal skin remains. Secondary closure for such a recent injury is unnecessary. The best choice for management is a tetanus immunization if he is not up to date, antibiotics, debridement, and primary closure with drainage. If grafting is required, a meshed split thickness graft is preferable because the meshing allows exudate to escape and gives improved cosmesis. Thigh pouches are rarely required as wet to dry dressings of the exposed gonads can be effective in critically ill patients until reconstruction is feasible.

73. The primary effect of marked chronic diuresis upon the ureter is:
A. no change.
B. aperistalsis.
C. dilation.
D. stress relaxation.
E. fibrosis.
ANSWER=C
Diuresis induces ureteral dilation that is the result of elongation and an increase in diameter of the ureter. If prolonged, some hypertrophy of ureteral muscle occurs. Stress relaxation is an intrinsic property of smooth muscle in vitro in response to acute stretch. Treatment of the prolonged diuresis may result in reversal of the ureteral dilation.

74. Which of the following is a polygenic disorder:
A. cystinuria.
B. Type I primary hyperoxaluria.
C. Type II primary hyperoxaluria.
D. idiopathic calcium oxalate nephrolithiasis.
E. adenine phosphoribosyl transferase deficiency.
ANSWER=D
Studies into molecular mechanisms of stone formation have identified gene mutations that can affect several organ systems culminating in hypercalciuria. Improved understanding of the molecular and genetic causes of stone disease may change the future of stone management. Idiopathic calcium oxalate nephrolithiasis is thought to be a polygenic disorder, one influenced by several genes. The other entities are monogenic, arising from an abnormality in a single gene.

75. The least likely location for an ectopic ureteral orifice in a boy is the:
A. seminal vesicle.
B. vas deferens.
C. bladder neck.
D. prostatic urethra.
E. pendulous urethra.
ANSWER=E
The ureter buds from the mesonephric (Wolffian) duct and is absorbed into the bladder base. Incomplete absorption of the upper segment of a duplication may lead to ectopia in those structures of mesonephric origin (seminal vesicle or vas) or into those structures of urogenital sinus origin (bladder, prostatic urethra). Ectopia distal to the verumontanum would not be expected. The development of the distal urethra relates to the development of the penis, not of the urogenital sinus.

76. Seminal emission depends on an intact:
A. parasympathetic and somatic nervous system.
B. sympathetic nervous system.
C. parasympathetic nervous system.
D. sympathetic and parasympathetic nervous system.
E. sympathetic and somatic nervous systems.
ANSWER=B
Emission is defined as the deposition of seminal fluid into the posterior urethra by the vasa deferentia and the seminal vesicles. Ejaculation is the forceful expulsion of seminal fluid out the urethral meatus by contraction of the bulbospongiosus and ischiocavernosus muscles. Since the vasa and the seminal vesicles are innervated primarily by the sympathetic nervous system, emission is under control of the sympathetic nervous system. Alpha-adrenergic nerve stimulation causes not only contraction of the seminal vesicles and vasa deferentia but also closure of the bladder neck. Ejaculation is the result of somatic nerve stimulation of the periurethral striated musculature. The parasympathetic nervous system is not directly involved with either emission or ejaculation.

77. Which of the following is most likely to cause painful gynecomastia:
A. leuprolide.
B. leuprolide and flutamide.
C. ketoconazole.

D. bicalutamide.
E. finasteride.
ANSWER=D
Breast tenderness and enlargement during hormonal therapy for prostate cancer is due to an altered ratio of serum estrogens and testosterone. Leuprolide inhibits pituitary LH release so there is no rise in serum estrogens. Ketoconazole inhibits androgen and estrogen synthesis.Bicalutamide inhibits both end organ and central androgen receptors so that both LH and androgen levels increase with loss of negative feedback inhibition.

78. A five-year-old girl is treated for cystitis. She has urge incontinence four days per week and nocturnal enuresis. A VCUG shows no reflux. Physical examination is normal. The next step is:
A. DDAVP®.
B. oxybutynin.
C. imipramine.
D. timed voiding.
E. observation.
ANSWER=D
Enuresis is a common problem in five-year-old children. Diurnal enuresis is present in 7-8%, and nocturnal enuresis in 15%. Pharmacologic management may be considered, but the initial treatment should be timed voiding. This will improve the enuresis and decrease the risk for subsequent infection. If timed voiding is not effective, the patient may be treated with either imipramine or oxybutynin. Since nocturnal enuresis is common at that age and the spontaneous resolution rate is 10-15% per year, treatment with DDAVP® is typically reserved for children over seven years of age. Observation leaves the child wet and is not appropriate.

79. The most significant complication of cyclosporine administration is:
A. cardiac toxicity.
B. bone marrow depression.
C. renal toxicity.
D. urticarial skin rash.
E. sodium retention.
ANSWER=C
Nephrotoxicity is the most common side effect of treatment with cyclosporine and has been observed in as many as 50% of patients. This is preventable by monitoring blood levels of cyclosporine with appropriate dose reduction as needed. Cyclosporine nephrotoxicity is usually reversible and occasionally necessitates complete discontinuation of the drug.

80. A 27-year-old woman at 30 weeks of gestation has gross hematuria. Ultrasound shows a normal pregnancy and a maternal bladder lesion. Cystoscopy reveals a 3 cm pedunculated papillary lesion. The remainder of the bladder is normal. The next step is:
A. immediate transurethral resection.
B. early delivery followed by transurethral resection.
C. transurethral resection after term delivery.
D. remove tumor with cup biopsy forceps at initial cystoscopy.
E. immediate tumor ablation with Nd:YAG laser.
ANSWER=C
Transitional cell carcinoma of the bladder during pregnancy is uncommon. Hematuria during pregnancy may be mistaken for antepartum bleeding. Although hematuria is often due to infection, other causes must be considered. Bladder sonography may detect bladder tumors in pregnant women. Although ultrasound is a good screening technique, it is still not reliable and cystoscopy should be considered in all pregnant patients with documented gross hematuria or persistent microscopic hematuria. The cystoscopic findings in this patient are that of a typical papillary low grade tumor. The endoscopic tumor resection should be performed after delivery. Immediate resection under anesthesia might induce uterine contractions. Bladder tumors in this age group almost always are low grade and noninvasive and as such do not require immediate removal.

81. During exploration of a retroperitoneal hematoma from blunt renal trauma, the best anatomic landmark for the left renal artery is the:
A. inferior mesenteric artery.
B. left renal vein.
C. right renal artery.
D. left gonadal vein.
E. left ureter.
ANSWER=B
The left renal artery originates from the aorta just lateral and superior to the left renal vein. Identifying the left renal vein as it crosses the aorta provides the best anatomic landmark for the left renal artery. The right renal artery is retrocaval and not a good landmark. The inferior mesenteric artery is caudad to the renal artery. The inferior mesenteric vein is a good landmark for the location of the aorta during emergent exploration. An incision is made medial to the inferior mesenteric vein. This is extended cephalad to the ligament of Treitz. The aortic dissection is carried cephalad to the left renal vein allowing identification of the renal arteries.

82. A 24-year-old man with a gunshot wound shattering the L-4 vertebral body achieves stable neurogenic bladder dysfunction nine months later. Pressure flow urodynamic studies will likely show:
A. detrusor overactivity, sphincter dyssynergia.
B. detrusor overactivity, normal sphincter EMG.
C. detrusor areflexia, sphincter dyssynergia.
D. detrusor areflexia, normal sphincter EMG.
E. detrusor areflexia, denervation potentials on EMG.
ANSWER=E
An injury to the vertebral column at L-4 injures the cauda equina and, depending on the extent of neural damage, will produce a loss of motor and sensory fibers to the bladder, pelvic floor, and external sphincter. Detrusor sphincter dyssynergia is produced by suprasacral spinal cord lesions that interrupt the ascending and descending pathways between the sacral spinal cord and the center for reflex detrusor and urethral function in the brain stem. Reflex detrusor function requires sacral root and sacral cord integrity. While an areflexic bladder faces fixed internal sphincter activity, that activity is normal and not truly dyssynergic. Since within the sacral and lumbar canal the nerve roots are intermingled, a lesion that produces detrusor areflexia would be expected to have a similar effect on the external sphincter; hence, the denervation potentials.

83. Instillation of perioperative intravesical chemotherapy after a complete TURBT for TCC of the bladder is effective only if given:
A. immediately following the resection.
B. within six hours of the resection.
C. within 24 hours of the resection.
D. within seven days of the resection.
E. within two weeks of the resection.
ANSWER=C
The administration of a single perioperative dose of intravesical chemotherapy after complete TURBT forTa-T1 TCC of the bladder significantly reduces the rate of tumor recurrence. This has also been summarized in a large meta-analysis in which patients receiving perioperative chemotherapy had a recurrence rate of 36.7% compared to 48.4% with TUR alone. In all studies where benefit was noted the instillation was given within 24 hours, generally either immediately or within six hours following the TURBT. Several randomized trials have demonstrated significant reductions in recurrence when the intravesical chemotherapy was administered within 24 hours as compared to starting it seven days later. Thus, there is evidence that the instillation should be given on the same day as the TURBT and not later.

84. A 70 kg diabetic man submits a 24-hour urine with a volume of 1400 ml and a urine creatinine of 140 mg/dl. This represents (a):
A. renal insufficiency.
B. diabetic hyperfiltration.
C. incomplete urine collection.
D. complete urine collection.
E. collection longer than 24 hours.
ANSWER=D
Normal creatinine excretion at baseline is approximately 20 mg/kg/day. When collecting a 24- hour urine for evaluating stone disease, it is important to index the collection against creatinine, as an incomplete or overcollection would otherwise lead to a false interpretation. It is not possible to determine renal function from

urine creatinine alone, since at baseline, the creatinine production and excretion is constant and independent of renal function. To determine glomerular filtration rate, serum and urine creatinine must both be determined.

85. A 40-year-old man has recent onset of erectile dysfunction. He also has a long-standing history of hypertension and dyslipidemia, treated with an ACE inhibitor and a statin, respectively. He has been using tadalafil for the past month for his erectile dysfunction. He complains of profound lower limb muscle pain. The next step is:
A. switch to another PDE5 inhibitor.
B. switch anti-hypertensive to a calcium channel blocker.
C. check serum creatine kinase level.
D. co-administer a NSAID.
E. Doppler ultrasound of lower extremity.
ANSWER=A
Myalgia (leg, back, buttock pain) occurs in about 10% of men using tadalafil, due to venous congestion of the large muscle of the body and there is no evidence that it is the result of rhabdomyolysis. Its severity is variable; however it is severe enough in some men that the medication needs to be switched to another PDE5 inhibitor. While, statins can cause rhabdomyolysis, in this patient, his long-standing use of the statin without myalgia and the chronological association between the pain and the commencement of the tadalafil suggest that the latter is to blame.

86. The manifestation of the von Hippel-Lindau syndrome that tends to be clustered only within a subset of affected families is:
A. renal cell carcinoma.
B. pheochromocytoma.
C. retinal angioma.
D. cerebellar hemangioblastoma.
E. epididymal papillary cystadenoma.
ANSWER=B
Penetrance for all of the manifestations of VHL is incomplete. Pheochromocytoma is found only in certain families with the VHL syndrome, primarily those with a missense mutation of the VHL gene. All of the other manifestations of VHL are found in most families with the syndrome.

87. An 11-year-old boy has hypertension associated with paroxysmal headaches, nausea, and vomiting. A renal Doppler ultrasound is normal. Plasma and urine catecholamine levels are highly elevated during a hypertensive episode. The next step is:
A. glucagon stimulation test.
B. clonidine suppression test.
C. abdominal CT scan.
D. abdominal MRI scan.
E. MIBG scan.
ANSWER=D
The patient has a classic history for a pheochromocytoma. This includes his age, sex, and symptoms. The normal renal Doppler ultrasound rules out most secondary renal causes of hypertension. The elevated plasma and urine catecholamine levels document biochemical evidence for a pheochromocytoma. Children have an increased incidence of bilaterality, multifocality, and a greater tendency for familial occurrence. MR imaging is the most sensitive study for localizing adrenal and extra-adrenal tumors. Theglucagon stimulation and clonidine suppression tests are used in instances of non-diagnostic plasma and urine catecholamine levels.

88. A 60-year-old man with retinitis pigmentosa and erectile dysfunction fails to get an erection with intracorporal and intraurethral PGE-1. His serum testosterone level is 400 ng/dl and color Doppler peak flow velocity of the cavernous arteries is 16 cm/sec after 20 meg of PGE-1. The next step is:
A. counseling.
B. sildenafil.
C. insertion of penile prosthesis.
D. testosterone supplementation.
E. yohimbine.
ANSWER=C
In patients with inherited retinal disorders such as retinitis pigmentosa, sildenafil use is contraindicated. Sildenafil inhibits PDE-VI expression in the retina and exacerbates visual disturbances. Testosterone supplementation is only indicated in the presence of documented hypogonadism. Yohimbine is not a useful treatment. In the presence of documented arterial insufficiency, a penile prosthesis is the best treatment.

89. A 67-year-old woman with steroid dependent COPD has multifocal CIS of the bladder. The next step is intravesical:
A. BCG.
B. thiotepa.
C. doxorubicin.
D. mitomycin C.
E. valrubicin.
ANSWER=D
Intravesical BCG is established as the best agent for intravesical therapy for CIS. However, it is contraindicated in immunocompromised patients because of impaired efficacy and an increased risk of infectious complications. The next most effective agent is mitomycin C, which would be the best choice in this clinical circumstance. Valrubicin is only indicated for BCG refractory CIS.

90. A six-month-old boy has a posterior sagittal anoplasty for a high imperforate anus. After the urethral catheter is removed, he has persistent urinary retention. The most likely cause is:
A. pudendal nerve injury.
B. bladder neck injury.
C. lumbosacral spine anomaly.
D. failure to close urethrorectal fistula.
E. unrecognized pelvic abscess.
ANSWER=C
There is a 13% to 45% incidence of anomalies of the lumbosacral spine in imperforate anus, resulting in 7%-18% incidence of neurogenic bladder. This may first become evident after repair of the anal lesion. Children with imperforate anus should be carefully checked for a neurogenic bladder. The pudendal nerve is not involved in bladder function. The other responses are rare.

91. During the third trimester of pregnancy, the most common changes in renal function are:
A. elevated BUN; decreased creatinine.
B. elevated BUN; elevated creatinine.
C. decreased BUN; decreased creatinine.
D. decreased BUN; elevated creatinine.
E. unchanged BUN and creatinine.
ANSWER=C
In pregnancy, glomerular filtration rate increases about 50% as full term approaches. This increase in GFR leads to a decrease in the serum BUN and creatinine. Therefore, the normal values for BUN and creatinine are lower in pregnant women than they are in non-pregnant women.

92. A 56-year-old female develops a 3.0 cm benign ureteral stricture at the left ureteroileal anastomosis six months after a radical cystectomy and ileal neobladder. Left renal function is 25%. The next step is:
A. endoscopic balloon dilation.
B. endoscopic cold knife incision.
C. metallic stent placement.
D. open surgical repair.
E. nephrectomy.
ANSWER=D
Ureterointestinal stricture can occur early or late after urinary diversion. The first step in management is to rule out disease recurrence. Once it has been established that the stricture is not due to recurrent cancer, the most effective approach to management in this setting is open surgical repair. Although various minimally invasive approaches have been employed, including balloon dilatation, cold knife or laser incision and stent placement, open surgical repair has been consistently shown to be the most effective way of addressing this problem, particularly in the setting of a longer stricture and decreased renal function. Minimally invasive approaches may be effective for shorter strictures (1-2 cm or less). Regardless of length, these strictures are usually due to devascularization of the distal ureter and extreme angulation of the left ureter at the level of the inferior mesenteric artery.

93. Fetal UPJ obstruction is most difficult to distinguish from:
A. multicystic dysplastic kidney.
B. polycystic kidney.

C. ectopic ureterocele.
D. posterior urethral valves.
E. refluxing megaureter.
ANSWER=A
The most frequent error in the diagnosis of fetal uropathy is in distinguishing UPJ obstruction from multicystic dysplastic kidney (MCDK). Since UPJ obstruction and MCDK are a spectrum, all patients with suspected MCDK need to have a confirmatory renal scan to document absence of function. The most sensitive scan is DMSA however a MAG-3 Lasix renogram will also confirm lack of function. Autosomal polycystic kidney disease is characterized by large kidneys greater than two standard deviations above the mean. Ectopic ureterocele is characterized by an upper pole dilated ureter and ureterocele in the bladder. Posterior urethral valves are characterized by a distended bladder and keyhole sign. Finally, on ultrasound a refluxing megaureter has a dilated ureter that is not present in UPJ obstruction.

94. A 68-year-old man with end-stage renal failure due to chronic glomerulonephritis has been on peritoneal dialysis for three years. He is anuric and asymptomatic. An ultrasound reveals several non-echogenic cysts involving the left kidney. The next step is:
A. left nephrectomy.
B. CT scan.
C. renal arteriography.
D. repeat ultrasound in two years.
E. conversion to hemodialysis.
ANSWER=D
Acquired renal cystic disease (ARCD) occurs in up to 45% of patients with chronic renal failure. Retrospective studies have indicated that renal cell carcinoma may develop in a small percentage (< 10%) of patients with ARCD. For this reason, periodic ultrasound is recommended for patients on chronic dialysis. It is appropriate to consider CT scan, arteriography, or surgical intervention only when the ultrasound suggests a complex cyst or tumor. Both hemodialysis and peritoneal dialysis have been associated with an equivalent incidence of ARCD, and there is no evidence that conversion from one form of dialysis to another influences this disease. Simple cysts in the nondialysis population do not require surveillance.

95. In comparing the traditional TRUS-guided sextant biopsy to extended peripheral zone sampling techniques, the location with the lowest unique cancer detection rate is:
A. mid-lobar base of the traditional sextant.
B. mid-lobar, mid gland of the traditional sextant.
C. mid-lobar apex of the traditional sextant.
D. lateral base of the extended.
E. lateral mid gland of the extended.
ANSWER=A
Extended core biopsy schemes have been shown to be superior to traditional sextant biopsy in terms of cancer detection. The schemes generally expand from the traditional sextant template. In one of the largest studies to compare techniques, a total of 483 consecutive patients referred for an abnormal DRE and/or PSA 4.0 ng/ml or greater underwent transrectal ultrasound and systematic biopsy. Lateral biopsies of the peripheral zone at the base and mid gland were added to the routine sextant biopsy regimen for a total of 10 systematic biopsies of the peripheral zone. Detection rates of the various regions were assessed. Various biopsy schemes were then created and cancer detection rates were compared. Of the patients, 42% (202 of 483) had cancer on biopsy. Traditional sextant biopsies missed 20%, while a sextant regimen incorporating lateral peripheral zone biopsies of the mid gland and base along with the apex missed 11% of the cancers. The combination of sextant and lateral peripheral zone biopsies (10-biopsy scheme) detected 194 cancers (96%). The 8 missed cancers were detected by lesion directed (5) or transition zone (3) biopsies. Of the 5 systematic peripheral zone regions the mid lobar base resulted in the lowest and unique cancer detection rates for all stratifications. The unique cancer detection for the traditional sextant sites were as follows: 8.4% apex, 4.0% mid, 1.0% base. For the lateral biopsies, the unique detection rate was 4.5% for the lateral mid and 6.9% for the lateral base. The mid lobar base in essence samples the central zone of the prostate where the fewest cancers would be detected. Thus, eliminating the mid lobar base biopsies from the systematic 10-biopsy peripheral zone regimen resulting in an 8-biopsy peripheral zone regimen decreased detection from 96% to 95%. The 6 systematic biopsies of the peripheral zone are inadequate and a minimum of 8, including the apex, mid lobar mid gland, lateral mid gland and lateral base, should routinely be performed.

96. The presence of nephrogenic rests may predispose to:
A. adenocarcinoma.
B. sarcoma.
C. adenoma.
D. hamartoma.
E. Wilms' tumor.
ANSWER=E
Lesions apparently representing Wilms' tumor precursors have been recognized for many years. They have been found in 1% of kidneys in infants on postmortem and in 30-40% of kidneys removed for Wilms' tumor. The terminology for these lesions has evolved over the years. These lesions were previously termed persistent nodular renal blastema, Wilms' tumorlet or nephroblastomatosis if there were diffuse lesions. The current preferred term is nephrogenic rest which is defined as foci of abnormally persistent nephrogenic cells that can potentially form a Wilms' tumor. It is has estimated that approximately 1 in 80 nephrogenic rests will develop into a Wilms' tumor.

97. The renal toxicity of radiocontrast material is due to:
A. glomerular injury.
B. afferent arteriolar constriction.
C. efferent arteriolar constriction.
D. intrarenal vasoconstriction and tubular necrosis.
E. efferent arteriolar dilation and tubular necrosis.
ANSWER=D
Two qualities of radiocontrast agents have been evoked to explain their renal toxicity. First, contrast agents are powerful renal vasoconstrictors and may cause a severe reduction in renal blood flow. Second, in vitro studies have demonstrated that these agents are toxic to renal tubular cells. This toxicity is enhanced by the hypoxia that results from diminished renal blood flow.

98. A 36-year-old obese paraplegic man undergoes evaluation for an ileal conduit diversion. The preferred site for urostomy placement is:
A. right upper quadrant lateral to rectus.
B. right upper quadrant through rectus.
C. right lower quadrant through rectus.
D. right lower quadrant lateral to rectus.
E. in midline at umbilicus.
ANSWER=B
Careful selection of the optimal site for a stoma is a critically important part of the preoperative evaluation of the patient. The stomal site should avoid the umbilicus, bony prominences, scars, and folds. It should be placed in a region where the flat abdominal skin measures 5-7 cm in both directions. The stoma for an ileal conduit is usually located in the right lower quadrant. Paraplegics, often with abdominal prolapse and wheel-chair existence pose a special problem for stomal site selection. A right lower quadrant site often results in a stoma that is difficult for the patient to see and the stoma and appliance are squeezed between the abdomen and thigh. For this reason, in the paraplegic patient the stoma should always if possible be placed in the upper abdomen. In addition, in all patients the stoma should be brought through the rectus muscle to minimize the risk of peristomal herniation.

99. A 16-year-old obese girl with spina bifida, mental retardation, and poor manual dexterity has total urinary incontinence and is presently treated with diapers alone. She has normal upper tracts and infected urine on occasion. She has recurrent perineal ulcers that do not heal. The best management is:
A. vesicostomy.
B. colon conduit.
C. bladder augmentation.
D. ureterosigmoidostomy.
E. CIC.
ANSWER=B
Although CIC is the treatment of choice for neurogenic bladder patients, in this situation it would be a poor choice. Not only would

she potentially be unreliable but there is good possibility that she would physically be unable to catheterize. Therefore, CIC would be contraindicated and augmentation ill-advised. Ureterosigmoidostomy is not an acceptable diversion in the myelodysplastic patient because of the unreliable anal sphincter mechanism. Vesicostomy is usually not an acceptable diversion for the older patient because of the pubic hair and problems with the stoma appliance fit. The colon conduit would be well suited in this clinical situation.

100. During transabdominal placement of an artificial urinary sphincter reservoir for postradical prostatectomy urinary incontinence, the peritoneal cavity is entered. There is no bowel injury. The next step is:
A. close the wound and terminate the procedure.
B. close the wound and relocate the reservoir to another abdominal location.
C. place the reservoir intraperitoneal^ and complete the procedure.
D. close the peritoneum and place the reservoir above the rectus abdominis
musculature.
E. convert to a trans-scrotal placement of the reservoir.
ANSWER=C
Inadvertent entry into the abdominal cavity may occur during placement of an artificial urinary sphincter. In the absence of bowel injury, this is of no consequence and the procedure can be completed as planned. Placement of the reservoir above the rectus abdominis may result in postoperative herniation of this component.

101. The most accurate method to estimate prostate volume by ultrasound is based on:
A. planimetry.
B. a sphere.
C. an ellipse.
D. a prolate ellipse.
E. a prolate sphere.
ANSWER=A
Unfortunately, no prostate is the perfect sphere, ellipse, or prolate sphere, rendering calculations somewhat inaccurate. The most accurate means of volume measurement by ultrasound is planimetry, which allows for variation in shape. In this, the probe is mounted on a stepping device and the signal marched through the gland at defined intervals, usually 3-5 mm. At each interval, the surface area of the prostate image is obtained. Volume is calculated by multiplying the sum of the surface areas by the stepping interval. Because of its superior accuracy, this is the method of choice for brachytherapy treatment planning.

102. The most common long-term sequela of a renal arteriovenous fistula occurring after needle biopsy of the kidney is:
A. hematuria.
B. flank pain.
C. diastolic hypertension.
D. tachycardia.
E. spontaneous closure.
ANSWER=E
Approximately 70% of fistulas occurring after needle biopsy of the kidney close spontaneously within 18 months. In the absence of significant related symptoms in such a patient, expectant management is appropriate initially. The clinical manifestations of a renal arteriovenous fistula depend upon the size of the fistula. Congestive heart failure, cardiomegaly, and diastolic hypertension are observed in 50% of symptomatic patients. Hematuria is present in about a third, tachycardia is occasionally found, and a palpable flank mass is very rarely encountered. About 75% of patients have an abdominal bruit.

103. A 58-year-old man has frequency and nocturia, an AUA Symptom Score of 22, peak urinary flow rate of 8 ml/sec, and PVR of 200 ml. His prostate is 70 gm with a prominent median lobe. Sitting systolic blood pressure is 140 mm Hg. An orthostatic blood pressure change of 25 mm Hg is not associated with postural symptoms. He is concerned about developing ejaculatory dysfunction. The best treatment is:
A. finasteride.
B. alfuzosin.
C. TUIP.
D. transurethral vaporization of the prostate.
E. TUMT.
ANSWER=B
Orthostatic hypotension is not a contraindication for alpha-blockers providing the blood pressure change is not associated with postural symptoms. The effectiveness of alpha- blockers is independent of prostate size. All surgical interventions may cause retrograde ejaculation. Finasteride will decrease semen volume.

104. A 74-year-old man with metastatic prostate cancer is treated with leuprolide and bicalutamide. After an initial response, his PSA rises to 34.5 ng/ml and the antiandrogen is stopped. Over the next six weeks, the PSA rises to 64 ng/ml, and he develops a left leg DVT as well as mild lower back pain. The next step is anticoagulation and:
A. flutamide.
B. ketoconazole and hydrocortisone.
C. docetaxel and estramustine.
D. spinal radiation.
E. strontium 89.
ANSWER=B
Patients with a rise in PSA while under the influence of combined androgen blockade may respond to further hormonal manipulations. The removal of anti-androgens, especially flutamide, may result in decreased PSA in up to 1/3 of patients. The addition of nilutamide, but not flutamide, has been reported to have some secondary activity. Since the patient has just been diagnosed with a DVT, one would want to avoid estramustine in the immediate time period and thus the patient should be treated with ketoconazole and hydrocortisone, a combination that is active in ~50% of patients.

105. The spread of urinary extravasation secondary to urethral injury below the urogenital diaphragm, when associated with a tear in Buck's fascia, is limited by the following fascial layers:
A. Denonvilliers' and Colles'.
B. Colles' and Scarpa's.
C. Scarpa's and Denonvilliers'.
D. dartos and Colles'.
E. dartos and Denonvilliers'.
ANSWER=B
When infradiaphragmatic urinary extravasation extends through Buck's fascia, it is limited only by Colles' fascia which attaches posteriorly at the triangular ligament and laterally at the fascia lata of the thigh. Colles' fascia is continuous anteriorly with Scarpa's fascia which extends superiorly to the coracoclavicular fascia. Therefore, both Colles' and Scarpa's fascia limit such an extravasation. Such an extravasation, particularly when associated with infection (periurethral phlegmon), can result in edema and necrosis of the skin of the penis, scrotum, and anterior body wall.

106. A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. Serum creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:
A. captopril plasma renin activity test.
B. unstimulated plasma renin activity test.
C. captopril renography.
D. duplex ultrasound.
E. diuretic renography.
ANSWER=D
This 52-year-old man is at risk for renovascular hypertension. Of the captopril modulated testing (PRA and captopril renogram) the renogram is a better test than peripheral PRA. Critical to the performance of these tests is appropriate patient preparation. Ideally, patients should be off all medications for two weeks. This is usually not possible clinically. It is apparent that ACE inhibitors will reduce the sensitivity of testing. Other antihypertensives can be used up to the morning of testing. In this setting, duplex ultrasound will give anatomic information on the renal arteries sufficient to determine the need for angiography.

107. A 58-year-old obese man has 400 ml of bile-stained fluid coming from his drain two days following transperitoneal laparoscopic unroofing of a large right renal cyst. He is afebrile

and his bowel sounds are normal. The leakage persists over the next five days despite nasogastric suction. KUB and upright abdominal x-rays are normal. The next step is:
A. feeding jejunostomy tube.
B. laparotomy.
C. parenteral nutrition.
D. somatostatin.
E. small bowel suction (Kantor) tube.
ANSWER=C
Immediate reoperation for fistula closure is not indicated as most fistulae heal with parenteral nutrition. Immediate operative intervention is not indicated unless the patient has signs of peritonitis or an acute abdomen. Parenteral nutrition has significantly improved the prognosis of patients with enterocutaneous fistula and has not only increased the rate of spontaneous fistula closure but also improved nutritional status of patients needing repeated operations.

108. A 62-year-old woman with metastatic renal cancer develops lethargy and confusion. Laboratory studies reveal: serum calcium 15.6 mg/dl, phosphorus 4.4 mg/dl, and creatinine 2.0 mg/dl. The best initial therapy is:
A. mithramycin.
B. furosemide.
C. steroids.
D. intravenous saline.
E. calcitonin.
ANSWER=D
This patient manifests the paraneoplastic syndrome of hypercalcemia. The hypercalcemia needs to be controlled promptly, and therapy should begin with hydration with isotonic sodium chloride. Hydration should result in an increase in calcium excretion and lowering of serum calcium levels to acceptable ranges. All other therapies are appropriate and effective if saline hydration is inadequate to return serum calcium to safe levels.

109. A 65-year-old man with rectal carcinoma treated by abdominal perineal resection develops urinary incontinence two years later. His urinalysis is normal and PVR is 300 ml. Renal ultrasound demonstrates moderate bilateral hydronephrosis. The most likely urodynamic findings are:
A. detrusor overactivity with bladder outlet obstruction.
B. detrusor overactivity with external sphincter dyssynergia.
C. detrusor areflexia with normal compliance.
D. detrusor areflexia with poor compliance.
E. impaired bladder contractility with intrinsic sphincter deficiency.
ANSWER=D
Permanent lower urinary tract dysfunction occurs in 15-20% of patients following radical pelvic surgery. The typical pattern is one of detrusor areflexia or hypocontractility in the presence of fixed residual striated sphincter tone. This fixed tone represents a functional obstruction that frequently results in decreased detrusor compliance. Although poor proximal sphincter function can also occur (intrinsic sphincter deficiency), this is often masked by prostate bulk in male patients.

110. A 59-year-old man with a history of liver transplantation has a 1 cm raised, tender, penile lesion at the coronal sulcus dorsally. Incisional biopsy reveals Kaposi's sarcoma. The next step is:
A. decrease immunosuppression.
B. topical 5-FU.
C. local excision.
D. C 0 2 laser ablation.
E. partial penectomy.
ANSWER=A
Kaposi's sarcoma is the 2nd most common malignancy of the penis after squamous cancer as a result of the prevalence of HIV infection. It also occurs in patients on immunosuppression for organ transplantation or other indications. In this setting, Kaposi's sarcoma often regresses with modification of the immunosuppressive regimen and this should be the initial approach. If the tumor fails to respond to these efforts, local excision or radiation should be considered. Partial penectomy is not indicated for this tumor type. 5- FU is typically utilized in squamous cell carcinoma of the penis.

111. When removing a large left adrenal pheochromocytoma, the first blood vessel(s) that should be ligated is (are) the:
A. aortic arterial branches.
B. superior phrenic artery.
C. inferior phrenic vein.
D. adrenal vein.
E. inferior adrenal artery.
ANSWER=D
During pheochromocytoma surgery catecholamines may be released into the circulation making the blood pressure difficult to control. Early ligation of the primary venous drainage, the left adrenal vein, may prevent the release of these vasoactive substances and allow the anesthetic management of the procedure to be simplified.

112. A 26-year-old schizophrenic man is evaluated two hours after self-amputation of his phallus at its base with a knife. The amputated organ has been preserved at room temperature. The next step is suprapubic cystotomy, debridement, and:
A. stump closure with distal spatulation of urethra.
B. stump closure with perineal urethrostomy.
C. leave stump open to heal by secondary intention.
D. creation of neophallus with abdominal pedicle flap.
E. reimplantation of phallus.
ANSWER=E
Reimplantation of the amputated phallus is usually successful even after two hours ischemia without ice. In fact, many organs may be damaged through frost injury if improperly stored in ice. The edges should be debrided and the corpora and urethra re-approximated without attempting reanastomosis of the cavernosal arteries. Microsurgical technique should be employed to re-anastomose the dorsal nerves, arteries and veins. Skin loss frequently occurs but it can be managed later with skin grafting.

113. A 56-year-old man undergoes a TUR of a sessile bladder tumor. The pathology reveals a T1 TCC. Before deciding upon additional treatment, a repeat resection must be done if the initial pathology has:
A. lymphovascular invasion.
B. carcinoma in-situ.
C. high grade disease.
D. no muscularis propria.
E. no muscularis mucosa.
ANSWER=D
The rate of clinical understaging in high-risk nonmuscle invasive bladder cancer is as high as 40% among those tumors with involvement of the lamina propria (clinical stage T1). Therefore, to reduce this staging error, the presence of uninvolved muscularis propria should be identified. While the presence of lymphovascular invasion, carcinoma in-situ and high grade tumors are all factors that place the patient at high risk for progression in stage, of the options listed only the absence of muscularis propria would necessitate an automatic restaging by repeat TUR. While muscularis mucosa has been suggested by some to be associated with risk of understaging and progression among T1 tumors, it is not identified in up to one half of TUR specimens and therefore the failure to identify this layer does not justify an automatic repeat resection.

114. The obliterated umbilical artery originates from which of the following arteries:
A. superior gluteal.
B. obturator.
C. middle sacral.
D. internal iliac.
E. external iliac.
ANSWER=D
The umbilical artery is the first visceral branch of the internal iliac artery and is very commonly a large trunk that in its proximal unobliterated section gives rise to the superior vesical artery as its first branch. The obliterated umbilical artery is an important landmark in the pelvis as it sweeps lateral to the ureter at the pelvic brim. It can be used to mark the peritoneum in pelvic dissections and may be confused with the vas deferens in the male.

115. A 50-year-old woman has urinary frequency, occasional urge incontinence, and dyspareunia. She has a history of recurrent UTIs. On physical examination, the bladder is not distended, but the urethra is tender to palpation. Which of the following would most reliably establish a definitive diagnosis:
A. cystogram.

B. urethral calibration with PVR assessment.
C. pelvic MRI scan.
D. cystoscopy.
E. urodynamics.
ANSWER=C
In this clinical setting, the most likely diagnosis is chronic urinary infection secondary to a urethral diverticulum. Although many of these lesions can be demonstrated on a VCUG, pelvic MRI is being used with increasing frequency to confirm the diagnosis. Endoscopic examination under general anesthesia with good relaxation and simultaneous digital compression of the anterior vaginal wall may be necessary to satisfactorily demonstrate these lesions. In some cases, a retrograde urethrogram, utilizing the double balloon compression technique, is necessary to demonstrate the diverticulum. Cystogram does not image the urethra. Quantitative urine cultures, although positive in these cases, do not establish the diagnosis. Urodynamics are not indicated in patients with suspected local urethral disease unless there is clinical evidence of co-existent neurogenic disease.

116. A 49-year-old man had a hand-assisted laparoscopic radical nephrectomy for a 3.8 cm renal mass. Pathologic analysis reveals a grade 3 clear cell RCC confined to the kidney and three regional lymph nodes are negative. The most appropriate follow up for this patient in addition to routine history and physical exam is:
A. laboratory studies yearly.
B. labs, CXR, and CT scan yearly.
C. labs, CXR, CT scan, and bone scan yearly.
D. labs and CXR every six months for three years then yearly.
E. labs, CXR, and CT scan every six months for three years then yearly.
ANSWER=A
Recent studies on the outcome after radial nephrectomy for localized RCC have demonstrated that the risk of recurrence is stage dependent with the risk approximately 7%, 25%, and 40% for T1, T2, and T3 NO M0 patients respectively. The risk of recurrence is also greatest during the first three years. Based on this data, evidence based recommendations for follow up have been published and surveillance should be tailored according to pathologic stage. For patients with stage 1 disease, routine follow up imaging is not necessary given the low risk of recurrence. In addition to yearly history, physical examination, and laboratory studies, a yearly CXR and a CT scan every two years is recommended for patients with Stage 2 disease. For patients with stage III disease, a history, exam, and CXR is recommended every six months for three years then yearly. In addition, a CT scan is recommended at year one and then every two years.

117. A 15-year-old boy involved in an MVC has multiple injuries. He has been oliguric for 24 hours. Non-contrast CT scan reveals no hydronephrosis and a minimal amount of urine in the bladder. Urinary dipstick and urine sediment are normal. The following laboratory values are obtained: serum creatinine 3.0 mg/dl, serum potassium 5.5mEq/l, urine osmolality 525mOsm/l, urine sodium 18mEq/l, fractional excretion of sodium is < 1%. The next step is:
A. low-dose dopamine.
B. volume replacement.
C. hemodialysis.
D. renal scan.
E. serum myoglobin.
ANSWER=B
The renal concentrating ability is not abolished in prerenal azotemia. Tubular function is also preserved, thus the urinary sodium concentration decreases. The intact tubular function in prerenal azotemia causes concentration of the urinary nitrogenous wastes. This leads to an elevated urine to plasma creatinine ratio, generally exceeding 40:1. Patients with acute renal failure would have increased fractional excretion of sodium and decreased urine osmolality. These patients frequently have an abnormal urinary sediment with renal tubular epithelial cells and tubular casts. If this patient had myoglobinuria, the dipstick would be positive although the urine would be negative for red cells. Low-dose dopamine is not appropriate in his hypovolemic state.

118. Nephrogenic adenoma of the bladder is associated with:
A. a higher incidence in women.
B. cytomegalovirus infection.
C. adenocarcinoma of the bladder.
D. cystitis cystica.
E. prior bladder injury.
ANSWER=E
Nephrogenic adenomas of the bladder are found usually in men and are associated with a prior history of bladder injury or chronic urinary tract infection. It is not associated with viral infection. Nephrogenic adenomas are not associated with cystitis cystica and associated only infrequently with bladder malignancies.

119. Among patients with metastatic renal cell carcinoma, sorafenib:
A. is ineffective if prior IL-2 was given.
B. is palliative in those with brain metastases.
C. improves resectability if given neoadjuvantly.
D. improves progression-free survival.
E. improves overall survival.
ANSWER=D
Sorafenib is an FDA approved oral medication for use in patients with metastatic renal cell carcinoma. The effects of sorafenib (BAY 43-9006), an oral multikinase inhibitor targeting the tumor and vasculature, on tumor growth in patients with metastatic renal cell carcinoma was evaluated in a randomized Phase II trial. Patients with brain metastases were excluded from the study; however patients with prior immunotherapy were included. Patients initially received oral sorafenib 400 mg twice daily during the initial run-in period. After 12 weeks, patients with changes in bi-dimensional tumor measurements that were less than 25% from baseline were randomly assigned to sorafenib or placebo for an additional 12 weeks; patients with >/= 25% tumor shrinkage continued open-label sorafenib; patients with >/= 25% tumor growth discontinued treatment. The primary end point was the percentage of randomly assigned patients remaining progression free at 24 weeks after the initiation of sorafenib. Of 202 patients treated during the run-in period, 73 patients had tumor shrinkage of >/= 25%. Sixtyfive patients with stable disease at 12 weeks were randomly assigned to sorafenib (n = 32) or placebo (n = 33). At 24 weeks, 50% of the sorafenib-treated patients were progression free versus 18% of the placebo-treated patients (P = .0077). Median progression-free survival (PFS) from randomization was significantly longer with sorafenib (24 weeks) than placebo (6 weeks; P = .0087). Median overall PFS was 29 weeks for the entire renal cell carcinoma population (n = 202). Thus, sorafenib has significant disease-stabilizing activity in metastatic renal cell carcinoma. There has been no data to suggest a survival advantage with sorafenib and it has not been used in the neoadjuvant setting. A recently published phase II randomized trial has shown similar results.

120. A newborn baby has a palpable abdominal mass. An ultrasound shows a normal right kidney and numerous large and small cysts replacing the left kidney. A VCUG shows Grade l/V right VUR and a DMSA scan demonstrates no function in the left kidney. The most likely consequence of this condition is:
A. hypertension.
B. renal insufficiency.
C. pancreatic cysts.
D. involution of the left kidney.
E. hepatic fibrosis.
ANSWER=D
The scenario is characteristic of a left multicystic kidney that is nearly always unilateral and is likely to involute. Hypertension can occur, but is rare. Autosomal dominant polycystic kidney disease is associated with aneurysms and recessive disease is associated with hepatic fibrosis.

121. A 22-year-old man develops severe hemorrhagic cystitis ten days following bone marrow transplantation for acute myelocytic leukemia. He had received cyclophosphamide prior to his transplantation. He requires numerous transfusions despite therapy with hydration, continuous bladder irrigation, and a single intravesical instillation of 3% formalin. The next step is:
A. bilateral percutaneous nephrostomy drainage.
B. intravesical irrigation with 1% aluminum potassium sulfate.
C. intravesical instillation of 1 % silver nitrate.

D. hypogastric artery embolization.
E. administration of sodium 2-mercaptoethane sulfonate (Mesna).
ANSWER=A
Severe hemorrhagic cystitis, defined as requiring transfusion of more than six units of packed red blood cells to maintain hemodynamic stability and refractory to conservative measures, is life-threatening. Intravesical administration of silver nitrate or alum is unlikely to be effective following the failure of formalin. Hypogastric artery embolization has been utilized but complications including gluteal claudication and necrosis of the bladder have been reported.Mesna is only effective when administered at the time of cyclophosphamide therapy since it binds to the active metabolite. Bilateral percutaneous nephrostomy tubes divert urine away from the bladder and facilitate application of more aggressive intravesical therapy.

122. A 51 year-old man has a T1c, Gleason 7 prostate cancer with a PSA of 9.1 ng/ml. He has moderate LUTS (IPSS=15) and prostate volume of 42 cc. Before any treatment decisions are made, he should undergo:
A. CT scan of abdomen and pelvis.
B. bone scan.
C. urodynamics.
D. assessment of life expectancy.
E. Prostascint® scan.
ANSWER=D
This patient has intermediate-risk clinically localized prostate cancer. According to the AUA guidelines for the management of clinically localized prostate cancer, as a standard, an assessment of the patient's life expectancy, overall health status, and tumor characteristics should be performed prior to making any treatment decisions. Life expectancy, not patient age, is a major factor to consider in treatment selection. When life expectancy is long, localized prostate cancer can be a cause of morbidity and mortality. On the other hand, when life expectancy is relatively short, competing causes for mortality reduce the chance that a man will experience disease progression or die from prostate cancer. Imaging studies including CT scan, bone scan, and Prostascint® scans are generally not indicated in the pretreatment evaluation of patients with clinically localized disease. This is especially true in patients with low and intermediate risk disease because the yield is so low to preclude their usefulness. Urodynamics are not indicated.

123. A phenotypically normal three-year-old girl has testicles found in the hernia sacs at herniorrhaphy. She will also have:
A. elevated 17-hydroxyprogesterone.
B. absent 5-alpha-reductase.
C. abnormal androgen receptor activity.
D. low testosterone and elevated LH and FSH.
E. 46 XO/XY karyotype.
ANSWER=C
Three percent of girls with inguinal hernias have testicular feminization. A testicle is found in the hernia sac and a chromosome analysis will reveal a 46XY karyotype. They should be raised as females and will require a gonadectomy. XO/XY chromosomal patterns are accompanied by a streak gonad most commonly. Elevated 17-hydroxyprogesterone is seen with CAH. Low testosterone with elevated LH and FSH occurs with abnormal testosterone production.

124. A 66-year-old man is scheduled for elective repair of a 7 cm abdominal aortic aneurysm. CT scan shows peri-aneurysmal fibrosis, a normal right kidney, and marked left hydronephrosis with cortical loss. Renogram demonstrates 25% function on the left, and a retrograde pyelogram reveals entrapment of a 6 cm segment of the mid-left ureter. The serum creatinine is 1.6 mg/dl. The next step is aneurysm repair and:
A. left ureterolysis.
B. delayed ureterolysis.
C. steroid therapy.
D. left nephrectomy.
E. balloon dilation.
ANSWER=D
The management of ureteral obstruction in association with inflammatory abdominal aortic aneurysms is controversial. Peri-aneurysmal fibrosis has been reported to subside in some cases after aneurysm repair and there have been some who have recommended steroid treatment for this condition. Since the right kidney is functioning normally and there is a long ureteral stricture, left nephrectomy should be strongly considered. Ureterolysis concomitantly with aneurysm repair would likely to require an ileal ureter or autotransplantation which would be ill-advised in this setting.

125. A 58-year-old man has T1c, Gleason score 6 prostate cancer. Pretreatment PSA is 4.7 ng/ml. The most important factor to consider regarding treatment decision making for this patient is:
A. prostate volume.
B. results of bone scan.
C. PSA velocity.
D. AUA symptom score.
E. patient preference.
ANSWER=E
According to the AUA guidelines for the management of clinically localized prostate cancer: 2007 Update, as a standard, patient preferences and functional status with special consideration given to functional outcomes including sexual, urinary, and bowel function should be considered in decision making. Radical prostatectomy, external beam radiation, interstitial radiation, and surveillance are appropriate treatment options with outcome data not providing clear-cut evidence for the superiority of any one treatment. There are trade-offs that must be considered when selecting a treatment for localized prostate cancer and each patient needs to determine based on their preferences which side effect profile is most acceptable to them when making a decision about treatment. The other options listed including prostate volume, PSA velocity, and AUA Symptom Score, may influence treatment decisions but are secondary to patient preference. Bone scan is not indicated in this patient.

126. The deep dorsal vein of the penis courses:
A. between Colles' and Buck's fascia.
B. between Buck's fascia and tunica albuginea.
C. between the corpora cavernosa.
D. in the subtunical space.
E. in the center of the corpus cavernosum.
ANSWER=B
The venous return from the penis is from the cavernous veins and the deep and superficial dorsal veins. The deep dorsal vein drains the glans penis as well as a major portion of the cavernous spaces of the corpus cavernosum. The vein lies beneath Buck's fascia and proceeds between the suspensory ligament of the penis to enter the urogenital diaphragm between the arcuate and transversus pubic ligament. It empties into the preprostatic plexis.

127. The risk of HIV transmission from a single blood transfusion is:
A. 1 in 100,000.
B. 1 in 250,000.
C. 1 in 500,000.
D. 1 in 2,000,000.
E. 1 in 10,000,000.
ANSWER=D
In the United States, transmission of HIV by blood transfusion occurs almost exclusively when a recently infected blood donor is infectious but before antibodies to HIV become detectable during the window period. Based on the latest information estimating the risk of HIV transmission, it was estimated that there was a risk of 1 case of HIV transmission for every 2 million donations of screened blood. Surgeons should be aware of this statistic as their patients do ask this important question.

128. A 43-year-old potent man is diagnosed with a 4 cm micropapillary TCC that extensively invades the lamina propria. Muscularis propria is present and uninvolved. Lymphovascular invasion is identified. The next step is:
A. restaging TURBT and intravesical BCG if muscle invasion is absent.
B. partial cystectomy followed by radiation therapy.
C. neoadjuvant cisplatin-based chemotherapy followed by radical cystectomy.
D. nerve sparing radical cystoprostatectomy.
E. cisplatin-based chemotherapy and radiation therapy.
ANSWER=D

T1 tumors with aggressive features (tumor size > 3 cm, micropapillary histology, and lymphovascular invasion) have an increased risk of progression and should undergo definitive cystectomy that is highly effective for early stage tumors. While intravesical BCG is an option for the treatment of T1 bladder cancer, the high risk features of this tumor leave the patient at a very high risk of relapse and progression. This is inappropriate given his young age and excellent health. Partial cystectomy is not the best choice for tumor control given the high risk of multifocal recurrences within the remaining bladder. Prophylactic radiotherapy and systemic chemotherapy have not been shown to reduce the risk of recurrence in individuals with T1 disease.

129. The radioisotope that is most helpful in identifying renal parenchymal scarring on a renal scan is:
A. Tc DTPA.
B. MAG-3.
C. Tc glucoheptonate.
D. MIBG.
E. Tc DMSA.
ANSWER=E
Renal cortical scintigraphy is the most sensitive method of detecting renal scarring. Tc DTPA is commonly used for assessment of renal function but the majority is filtered at the glomerulus and cleared so rapidly that it is not suitable for this purpose. Tc glucoheptonate clears by both tubular secretion and glomerular filtration. About 6% of the dose is retained in the renal cortex by three to four hours after injection. Tc DMSA has much better renal concentration with 30% of activity concentrated in each kidney at six hours after injection. MAG-3 is another renal tubular agent but has much lower tubular secretion. MIBG is used for imaging of the adrenal glands.

130. A 29-year-old Jehovah's Witness complains of recurrent UTIs and flank pain. A noncontrast CT scan reveals a complete right-sided staghorn calculus with hydronephrosis. Renal scan confirms adequate differential function. The next step is:
A. antibiotic suppression.
B. acetohydroxamic acid.
C. SWL.
D. PCNL.
E. anatrophic nephrolithotomy.
ANSWER=D
Recurrent infections and flank pain associated with a complete staghorn calculus in a young Jehovah's Witness patient requires extensive discussions of treatment options and potential outcomes. Chronic antibiotics will not eradicate the UTI. Complications include pyonephrosis, urosepsis, fistula and severe pain. SWL, although appearing benign, can result in steinstrasse, persistent hydronephrosis, pyonephrosis and may ultimately require multiple interventions. Acetohydroxamic acid is associated with numerous side effects and will not be a permanent solution. An anatrophic nephrolithotomy may result in substantial blood loss and may not render the patient stone free. Percutaneous nephrolithotomy can be performed safely. Patients need to be informed of the small risk of blood loss.

131. During performance of a TRUS of the prostate, decreasing the transducer frequency from 7.5 to 4.5 MHz would:
A. decrease resolution and increase depth of penetration.
B. increase resolution and decrease depth of penetration.
C. decrease resolution and decrease depth of penetration.
D. increase resolution and increase depth of penetration.
E. have no effect on resolution and depth of penetration.
ANSWER=A
A basic understanding of ultrasound physics is important for optimal diagnostic imaging using this modality. Ultrasonography uses high-frequency sound waves to image anatomic structures. The sound waves as a result of their interaction with tissue are either reflected, refracted, or absorbed. Air reflects sound waves completely; bone absorbs them completely. In diagnostic imaging of the GU system, frequencies between 1 and 10 MHz are typically used. Sound waves have a wave-length between these frequencies of 1.5 to .15 mm which sets a fundamental limit on the potential spatial resolution of the image. Many current ultrasound probes have variable frequency transducers allowing the operator to adjust the frequency in order to optimize imaging characteristics. Increasing the frequency (MHz) increases spatial resolution. However, as the frequency is increased, the depth of penetration decreases as a result of attenuation of ultrasound. Optimum imaging is thus obtained by choosing the highest frequency that will permit adequate penetration to identify the region of interest

132. A 32-year-old man desires a biological child. Both testes are 4 cm in long axis and soft. Two semen analyses reveal azoospermia with volumes 3.0 ml and 3.1 ml. Testosterone is 280 ng/dl (normal 300-1000 ng/dl), LH is 7.5 IU/I (normal 2-12 IU/I) and FSH is 8.5 IU/I (normal 2-12 IU/I). The next step is:
A. repeat semen analysis.
B. clomiphene citrate.
C. hCG and recombinant FSH.
D. testis biopsy.
E. epididymovasostomy.
ANSWER=B
A testis biopsy is not required to establish the diagnosis of spermatogenic dysfunction, as the likelihood of non-obstructive azoospermia in a man with testis longitudinal axis less than 4.6 cm and FSH greater than 7.6 IU/I is 89%. In a recent multicenter trial, over 60% of men with non-obstructive azoospermia demonstrated sperm in their semen analyses after clomiphene citrate administered with mean duration five months. The clomiphene dose should be titrated to increase the serum testosterone levels to 600-800 ng/dl. A third semen analysis is unlikely to aid in the diagnosis, and with LH and FSH levels in the normal range, exogenous hCG and recombinant FSH are unhelpful. Microsurgical reconstruction will not result in ejaculated sperm because non-obstructive azoospermia is caused by impaired spermatogenesis.

133. A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:
A. remove intrauterine device.
B. metronidazole for patient.
C. metronidazole for patient and partner.
D. ciprofloxacin for patient.
E. ciprofloxacin for patient and partner.
ANSWER=B
Bacterial vaginosis results from an alteration of normal vaginal flora with a predominance of Lactobacillus species and high concentrations of anaerobic bacteria. Diagnosis can be confirmed with identification of clue cells, a homogenous vaginal discharge, a vaginal pH > 4.5, and a malodorous fishy vaginal discharge. It is more prevalent in lesbians. Risk factors may include multiple sexual partners, a new sexual partner, use of an intrauterine device, and douching. Treating the patient is as effective as treating the patient and partner. Symptoms may recur in 1/3 of patients after treatment. Metronidazole is the treatment of choice.

134. In a man who has good daytime continence following radical cystectomy and orthotopic neobladder, nocturnal incontinence is due to:
A. damage to the urinary rhabdosphincter.
B. neobladder hypercontractility.
C. inadequate compliance of the neobladder.
D. loss of afferent input from the detrusor to the central nervous system.
E. damage to the inferior hypogastric nerve plexus.
ANSWER=D
Isolated nocturnal incontinence is sometimes noted in patients who have undergone radical cystectomy and orthotopic neobladder. This is thought to be related to loss of afferent input from the detrusor to the central nervous system. Normally the afferent input causes a reflex rise in urethral pressure during reservoir filling. This reflex is maintained following radical prostatectomy, which explains why isolated nocturnal incontinence is uncommon after this procedure. If there was damage to the rhabdosphincter, the patient would experience incontinence during the day and night, as opposed to isolated nocturnal incontinence. This would also be the case if the neobladder had poor compliance or had contractions. While some authors have suggested that damage to the pelvic and hypogastric plexus contributes to incontinence after cystectomy, this also would not cause isolated nighttime incontinence.

135. A nine-year-old girl with a history of documented asymptomatic bacteruria changes pediatricians. The new

physician treats her bacteruria with multiple courses of antibiotics. She then develops pyelonephritis twice in a six month period. Her VCUG, renal ultrasound, and toilet habits are normal. Her pyelonephritis is likely due to:
A. intermittent VUR.
B. change in bacterial strain.
C. menarche.
D. subclinical constipation.
E. detrusor sphincter dyssynergia.
ANSWER=B
The most likely etiology of her new symptomatic UTIs is a change in the bacterial strain resident in her bladder. This is often due to misdirected efforts to eradicate her asymptomatic bacteruria with antibiotics thus leading to a more virulent bacteria strain. The risk for development of pyelonephritis in a girl over four years of age with untreated asymptomatic bacteruria is small and seems to be associated with a change in bacterial strain.

136. A 72-year-old woman undergoes an abdominal hysterectomy for uterine fibroids. In the recovery room, she is anuric for four hours despite several boluses of intravenous fluids. Her indwelling catheter is patent. Her blood pressure is 100/50 mmHg, pulse is 100. Estimated blood loss during the procedure was 1000 ml. The best explanation for her condition is:
A. acute tubular necrosis.
B. bilateral ureteral obstruction.
C. prerenal azotemia.
D. hypovolemic shock.
E. vesicovaginal fistula.
ANSWER=B
Anuria always implies complete ureteral obstruction until proven otherwise. The two most likely areas where the ureter can be occluded during hysterectomy are at the level of the broad ligaments and at the vaginal cuff and bladder trigone. Consequently, the most likely finding in this patient would be a ureteral obstruction at the level of the vaginal cuff. While hypovolemic shock and low urine outputs are commonly seen after all types of abdominal operations, the anuria in this case suggests an obstructive etiology. Acute tubular necrosis does not normally occur in a precipitous fashion as in this case. A vesicovaginal fistula should be obvious clinically.

137. A 77-year-old man with hypertension, coronary artery disease, and a creatinine of 1.9mg/dl has gross hematuria. Cystoscopy reveals a normal bladder and bilateral retrogrades show a small right distal ureteral filling defect. On ureteroscopy there is a 5 mm solitary papillary tumor and biopsy demonstrates a low grade TCC. The next step is:
A. intravesical BCG with ureteral stent in place.
B. ureteroscopic laser ablation of tumor.
C segmental resection and ureteroureterostomy.
D. distal ureterectomy with reimplant.
E. laparoscopic nephroureterectomy.
ANSWER=B
Multiple series have documented the safety and efficacy of endoscopic management of upper tract TCC. This elderly patient has significant comorbidities and a low grade distal ureteral TCC. Low grade tumors at ureteroscopic biopsy have a strong correlation with noninvasive stage at the time of nephroureterectomy. Similarly, high grade disease identified on ureteroscopic biopsy is very likely to represent invasive disease at the time of final pathologic staging. While optimal therapy for a low grade ureteral tumor in a younger, healthier patient would be distal ureterectomy and reimplantation, this patient would be well-served with endoscopic management. Although upper tract tumors can be ablated with electrocautery delivered through a small Bugbee electrode, the variable depth of penetration and risk of stricture formation have made the use of laser energy for ablation more popular. Follow-up of the patient should include endoscopic evaluation (ureteroscopy) on a periodic basis.

138. A 32-week-gestation neonate is found to have candiduria on two successive urine cultures. He is voiding spontaneously, and his renal/bladder ultrasound is normal. The most appropriate therapy is:
A. repeat urine culture in one week.
B. circumcision.
C. intravesical amphotericin.
D. parenteral fluconazole.
E. parenteral amphotericin.
ANSWER=D
The incidence of nosocomial fungal urinary tract infections is increasing. Candida is the most common offending organism. Aggressive treatment is required due to a high incidence of subsequent candidemia that has been reported to occur in 25-85% of neonates with candiduria. Isolating treatment to the bladder with topical irrigation will not effectively treat the upper tract. Parenteral treatment is required. Fluconazole is the treatment of choice in a premature infant when compared to amphotericin because of significantly diminished side effects.

139. A 34-year-old HIV positive man has fever, dysuria, and diarrhea. Physical examination reveals a tender prostate and the urine culture is negative. TRUS demonstrates multiple hypoechoic lesions confined to the posterior prostate gland. The most definitive therapy is administration of broad spectrum I.V. antibiotics and:
A. insertion of suprapubic tube.
B. insertion of urethral catheter.
C. needle aspiration of the prostate for culture.
D. transurethral unroofing of abscess.
E. transrectal drainage of abscess.
ANSWER=D
The incidence of prostatic abscess has declined but is still seen in immunodeficient patients such as those with HIV. TRUS is now the imaging modality of choice for the evaluation of patients with suspected prostatic abscess. Antibiotic therapy alone will not be sufficient if an abscess is found. Suprapubic urinary diversion is appropriate in patients with acute bacterial prostatitis without an abscess. Transurethral unroofing is the treatment of choice in patients with an abscess confined to the prostate gland while open drainage is required for patients with more extensive lesions. Transrectal drainage can be used as an alternative when transurethral drainage fails.

140. A 63 year-old man with no prior history of bladder cancer and a normal preoperative bladder washing for cytology has a solitary 0.5 cm papillary grade 1 Ta TCC. According to the AUA Guideline for the management of nonmuscle invasive bladder cancer, the next step is:
A. six weekly instillations of mitomycin C.
B. six weekly instillations of mitomycin C followed by maintenance.
C. a single dose of mitomycin C postoperatively.
D. six weekly BCG instillations.
E. six weekly BCG instillations followed by maintenance.
ANSWER=C
In the patient with an initial presentation of a solitary, low grade noninvasive TCC, the only adjuvant therapy to be considered is an immediate postoperative instillation of intravesical chemotherapy. In the metaanalysis reported in the 2007 update of the AUA guideline for the management of nonmuscle invasive bladder cancer, a single perioperative dose of mitomycin C resulted in a 17% reduction (95% CI: 8,28) in recurrences compared to TURBT alone. The panel found no evidence that multiple adjuvant instillations of either BCG or chemotherapy have additional benefit in patients at initial diagnosis of Ta grade 1 bladder cancer.

141. A two-month-old girl with a myelomeningocele closed at birth has a febrile UTI. Videourodynamics demonstrates Grade V/V bilateral VUR, a thick-walled bladder, and leakage around a 5 Fr urethral catheter at 30 ml volume and 50 cm H2 0 pressure. The next step is prophylactic antibiotics and:
A. vesicostomy.
B. enterocystoplasty.
C. cutaneous ureterostomy.
D. antimuscarinics.
E. urethral dilation.
ANSWER=A
This small volume, high pressure bladder may be even worse than urodynamics show, as the bladder volume and pressures are lowered by venting from VUR. The upper tracts are at great risk. Vesicostomy provides immediate and complete relief from high pressures with less subsequent reconstructive trouble than cutaneous pyelostomy. Augmentation of the bladder would be premature at this stage as it increases the complexity of care and starts a clock related

to the known and unknown complications of enteric substitution. Even if eventually necessary, augmentation cystoplasty could be safely delayed for several years. Antimuscarinics alone will not benefit this patient. Urethral dilation is of short-term benefit for most patients.

142. A 22-year-old primigravida woman in her 28th week of pregnancy develops hematuria and intermittent right flank pain. Ultrasound reveals a 12 mm calculus at the level of the right UPJ. She is afebrile, and a urine culture is sterile. The next step is:
A. hydration and observation.
B. PCNL
C. percutaneous nephrostomy.
D. urethroscopy and laser lithotripsy.
E. ureteral stent.
ANSWER=E
Among pregnant women with a calculus, one-half to two-thirds will pass their stone spontaneously. The average size of a passed calculus is 6 mm (2-11 mm). Among the remaining patients, over 80% will likely be in their third trimester; in this group, placement of an indwelling stent is the most generally accepted next step. The stent can be placed under ultrasonic or fluoroscopic control. If fluoroscopy is used, the fetus should be shielded; however at this time, chances of any adverse developmental effect of radiation to the fetus are low. It is recommended that the stent be changed every 4-8 weeks, although some urologists have reported stent indwell times for the duration of the last trimester with successful retrieval of the encrusted stent. The use of a percutaneous nephrostomy in the third trimester is less acceptable due to the discomfort to the patient, invariable bacterial colonization of the urine, and the frequent problems of encrustation and blockage of the nephrostomy tube necessitating emergency changing of the tube approximately once a month. In this patient, hydration and observation are not reasonable. Spontaneous passage is unlikely given the size of the stone. A surgical procedure also is not indicated, as the goal of therapy is to relieve the stone-induced obstruction. After the patient delivers her child, the stone can be treated with SWL, a less morbid treatment than a percutaneous or ureteroscopic procedure.

143. A 23-year-old man with AIDS has a three-day history of painful right testicular swelling. The testis is diffusely swollen with a hard lesion in the upper pole. After two weeks of oral antibiotic therapy, the tenderness has resolved but the mass persists. Ultrasound of the scrotum shows a 1.5 cm mixed echogenic mass in the right testicle and a normal left testicle. Serum tumor markers and abdominal CT scan are normal. The next step is:
A. radical inguinal orchiectomy.
B. continue antibiotics and re-evaluate in two weeks.
C. PPD skin test.
D. scrotal exploration.
E. aspirate mass for culture.
ANSWER=A
Patients with AIDS are at risk for various genitourinary infections and initial treatment of this patient with antibiotics is appropriate. In this patient, the initial clinical response does suggest the possibility of an underlying infection at initial presentation, but could also reflect spontaneous resolution of peri-tumoral inflammation from hemorrhage within a tumor. Patients with AIDS may be at greater risk for testicular tumors and the presence of an intraparenchymal testicular mass merits inguinal orchiectomy. Scrotal exploration would likely be noninformative, and intraoperative biopsy is only warranted in cases of solitary testis or those cases in which the surgeon has a very low suspicion of tumor. Transscrotal biopsy or aspiration is not advisable if malignancy is suspected.

144. Renovascular hypertension that is likely to respond to angiographic or surgical intervention is characterized by:
A. marked elevation in plasma renin values.
B. elevation of renal vein over inferior vena caval concentrations of renin by at least 25%.
C. elevation of ipsilateral renal vein renin by at least 50% over peripheral and contralateral renal vein renin.
D. elevation of ipsilateral renal vein renin by 50% over peripheral plasma renin, and by 25% over the contralateral renal vein renin.
E. marked elevation of ipsilateral and contralateral renal vein renin as well as peripheral plasma renin.
ANSWER=C
The response of renovascular hypertension to surgery or angiographic intervention depends upon the type of lesion and its location. Renin is a mediating substance for renovascular hypertension and a search for its origin in helpful. Significantly elevated renin from one renal vein and not the other leads to localization of a candidate for intervention. Further evaluation by imaging and provocative studies involving ACE inhibitors may also confirm the diagnosis and help decide whether surgical treatment is necessary.

145. Following a nephrectomy for calculous disease, a patient with a normal contralateral kidney has a urine output of 800 ml/day despite receiving 2000 ml I.V. fluids daily. Blood loss at nephrectomy was replaced. The serum sodium is 125mEq/l, the serum potassium is 3.5mEq/l, and the serum osmolality is 270mOsm/l. The urinary sodium is 20mEq/l and the urine osmolality is 480mOsm/l. The most likely cause of these findings is:
A. inappropriate ADH secretion.
B. acute tubular necrosis.
C. adrenal insufficiency.
D. dehydration.
E. exogenous water intoxication.
ANSWER=A
The syndrome of inappropriate ADH secretion (SIADH) may be associated with malignancy, pulmonary and CNS disorders, and certain drugs. Hyponatremia, decreased serum osmolarity (< 285mOsm/l) with inappropriately increased urine osmolarity (> 300mOsm/l), normal adrenal and thyroid function and urine sodium in excess of 20mEq/l characterize the process. A diagnosis of SIADH can only be made if a patient is euvolemic (as in the present case), as increased ADH secretion is physiologic in hypovolemic states. Adrenal insufficiency would result in increased serum potassium. Dehydration would result in mild hypernatremia and a higher urine osmolarity. There is no reason, in the present case, to consider water intoxication given the administration of only 2000 ml of I.V. fluid daily.

146. A 21 -year-old man had a right inguinal orchiectomy for a clinical Stage I mixed germ cell tumor. He was observed and seven months later, a 4 cm mass is seen on the abdominal CT scan in the interaorto-caval region. The chest x-ray, beta-hCG, and AFP are normal. The next step is:
A. retroperitoneal radiation.
B. percutaneous biopsy of retroperitoneal mass.
C. platinum based chemotherapy.
D. right modified template RPLND.
E. full bilateral RPLND.
ANSWER=C
This patient has an abdominal relapse after observation. Correct management is 3 cycles of BEP (bleomycin, etoposide, cisplatin) for disseminated germ cell tumor in good risk patients. Biopsy of the mass could miss elements of residual cancer and should not be performed. Although the original tumor showed elements of seminoma, radiation would not be the preferred treatment for masses > 3 cm. Retroperitoneal lymphadenectomy is usually not performed prior to chemotherapy for masses > 3 cm on CT scan, avoiding double therapy in these patients.

147. A 16-year-old girl with known inflammatory bowel disease develops disabling frequency, urgency, and nocturia. She has recurrent E. coli UTIs. Ultrasound shows mildly dilated upper tracts bilaterally. A CT scan shows a thickened bladder wall. Cystoscopy reveals an inflamed trigone without discrete evidence of a fistula. The most important form of therapy for her is:
A. intravenous antibiotics.
B. temporary diverting colostomy.
C. a temporary suprapubic cystostomy.
D. medical management of the bowel disease.
E. exploratory laparotomy with appropriate bowel resection.
ANSWER=D
The most common urologic complication of inflammatory bowel disease is cystitis. This can happen with or without an enteric-

urinary fistula. Management should be directed at the inflammatory bowel disease and should be non-surgical if at all possible. Surgical procedures such as diverting colostomy, suprapubic tube or bowel resection are inappropriate as initial management. Intravenous antibiotics will not be any more effective than oral antibiotics..

148. The irrigating solution that should be used for diagnostic percutaneous nephroscopy and ureteroscopy is:
A. 1.5% glycine.
B. sterile water.
C. 3% glycine.
D. 0.9% sodium chloride.
E. 0.15% sodium chloride.
ANSWER=D
Intravascular fluid absorption can occur with ureteroscopy and percutaneous nephroscopy. This may be massive during percutaneous nephrostolithotomy if a closed irrigation and drainage system is used. Normal saline is both isotonic and non-conductive whereas the other listed fluids do not share both of these properties. There is no advantage using a solution other than normal saline during these procedures unless intrarenal electrosurgery is being performed. Only in this situation is it necessary to change to using glycine or sorbitol as the irrigant.

149. The serum beta subunit of human chorionic gonadotropin (beta-hCG) may be falsely elevated by cross-reactivity with:
A. inhibin.
B. alpha-fetoprotein (AFP).
C. luteinizing hormone (LH).
D. follicle-stimulating hormone (FSH).
E. gonadotropin releasing hormone (GnRH).
ANSWER=C
Luteinizing hormone and human chorionic gonadotropin have extensive structural homology. Both share a common alpha-subunit and the beta-subunits are 80% homologous. A number of commercially available radio immunoassay kits for beta-hCG will cross react with elevated levels of LH. Elevated LH concentrations may result after orchiectomy if there is inadequate testosterone production from the contralateral testis, thereby producing a spuriously positive elevation of the hCG. This becomes clinically relevant in determining whether individuals with elevated serum beta-hCG require chemotherapy following inguinal orchiectomy for testis cancer. If low testosterone, and secondarily increased LH, is suspected, then administration of exogenous testosterone may normalize the beta-hCG level.

150. A seven-year-old boy has left flank pain and gross hematuria after a bicycle accident. CT scan with contrast reveals multiple cysts of both kidneys and a small left perinephric hematoma. The study most likely to be diagnostic of his underlying problem is:
A. repeat CT scan in two weeks.
B. cranial MRI scan.
C renal ultrasound of parents.
D. MR angiography.
E. VCUG.
ANSWER=C
A screening ultrasound of the parents will confirm the diagnosis of a autosomal dominant polycystic disease which is an important cause of renal failure and accounts for 10% of the patients in the United States on chronic hemodialysis. The lesion is an autosomal dominant condition, therefore, 50% of the children of the affected adult will be similarly affected.

aua 2009

1. A 65-year-old man with LUTS and an AUA Symptom Score of 18 is treated with terazosin. Six months later, he develops hypertension. Which antihypertensive drug is contraindicated?

A. hydrochlorothiazide.
B. verapamil.
C. metoprolol.
D. losartan.
E. enalapril.
ANSWER=B

A thorough medical history, including an assessment of current medications is imperative when starting patients on alpha-blocker therapy. While several studies have demonstrated the safety of terazosin, and that typically blood pressure is only lowered in hypertensive patients, the concomitant use of terazosin and calcium channel blockers, especially verapamil is dangerous and can precipitate severe hypotension. The use of an alpha-blocker and a diuretic, beta-blocker, or ACE-inhibitor has not been associated with the same risk of hypotension.

2. A very tall 24-year-old man with primary infertility has slight gynecomastia and disproportionately long arms. He has a normal male pattern of hair distribution in his pubic area and axillae. His testes are 3 ml and firm bilaterally. His sperm concentration is 0.5 million/ml. Genetic analysis will most likely show:

A. microdeletions of the Y chromosome.
B. 46, XX karyotype.
C. 47, XXY karyotype.
D. 50% 46, XY; 50% 47, XXY karyotype.
E. 45, XO karyotype.
ANSWER=D

Genetic abnormalities commonly associated with severely abnormal sperm production include microdeletions of the Y chromosome, classic Klinefelter's syndrome, or mosaic Klinefelter's syndrome. A 45.XO karyotype is associated with Turner's syndrome (gonadal dysgenesis) in phenotypic women. Men with microdeletions of the Y chromosome typically have a normal appearance. The phenotypic appearance of this patient is most consistent with Klinefelter's syndrome. Men with classic Klinefelter's syndrome are almost always azoospermic, suggesting that this patient most likely has a mosaic form of this syndrome.

3. A 64-year-old man with clinical T1c Gleason 6 prostate cancer and PSA of 5.0 ng/ml desires active surveillance. He has a microscopic focus of cancer in one of 12 biopsy cores. His prostate gland size is estimated to be 50 ml. The next step is:

A. repeat biopsy only for rising PSA.
B. repeat biopsy within one year.
C. antibiotics, repeat PSA.
D. treat prostate cancer.
E. hormonal ablation.
ANSWER=B

In patients desiring active surveillance, it is important to determine if the patient is truly low risk in as accurate a fashion as possible. This patient has low PSA, low stage, favorable Gleason score, and small volume disease. By most established clinical criteria, he meets the guidelines for minimal disease appropriate for surveillance. Immediate repeat biopsy is considered advisable because it will confirm the favorable pathologic factors of the first biopsy, and it has been shown to predict the likelihood of progression in the series by Patel, et al. In this series, actuarial progression free survival with 83% in men without abnormal findings on repeat biopsy compared to 43% in those with abnormal findings on repeat biopsy. In individuals with small volume disease, serum PSA measurements alone are not adequate to follow disease progression on active surveillance. As such, using antibiotics to drive the PSA down will not improve the performance characteristics of PSA in assessing risk. Annual biopsy will be required after immediate repeat biopsy.

4. The most frequent long-term complication of CIC in men with spinal cord injury is:

A. VUR reflux.
B. squamous metaplasia.
C. bladder calculi.
D. chronic pyelonephritis.
E. urethral stricture.
ANSWER=E

CIC is the preferred bladder management in most spinal cord injury patients and is associated with a low incidence of VUR, squamous metaplasia of the bladder lining, bladder calculi, and pyelonephritis. However, local trauma to the urethral wall induced by repeated introduction of the catheter has been reported. Strictures and false passages seem to appear after several years in some male patients.

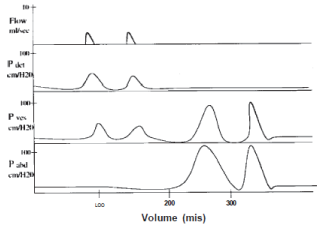
5. A 47-year-old man underwent a vasectomy 16 years ago at the time of a hernia repair and recently married a 33-year-old woman who has never attempted to become pregnant. He has two grown children and now desires more children. Antisperm antibody titers are positive. The factor that portends a poor outcome after vasectomy reversal is:

A. partner age > 30 years.
B. previous inguinal surgery.
C. partner has never been pregnant.
D. presence of antisperm antibodies.
E. long interval since vasectomy.
ANSWER=E

A gradual decline in success rates is seen with increasing intervals of obstruction, with pregnancy rates dropping below 50% after nine years. Delivery rates also decline significantly when the age of the partner is over 35 years. One study suggested that vasectomy at a younger age correlates with higher success rates, but this finding has yet to be validated by others. The significance of a positive antisperm antibody (ASA) status is controversial, but the high rate of successful vasectomy reversals despite the high incidence of ASA after vasectomy suggests that ASA status may not be a reliable prognostic factor.

6. A 35-year-old woman with T8 paraplegia underwent augmentation ileocystoplasty for urinary incontinence unresponsive to CIC and antimuscarinics. Post-operatively, she has persistent incontinence unresponsive to antimuscarinics. Her urodynamic evaluation is demonstrated in the exhibit. The next step is:

A. creating an ileovesicostomy.
B. continent catheterizable urinary diversion.
C. inserting an additional bowel patch into the cystoplasty.
D. placing a pubovaginal sling.
E. bladder neck closure and appendicovesicostomy.



ANSWER=C

This patient suffers from post-augmentation cystoplasty incontinence because of intermittent overactive contractions of the augmented bladder as seen in the urodynamic study. This can occur despite adequate detubularization of the bowel or from inadequate bivalving of the bladder. When antimuscarinics fail, the best treatment is inserting an additional patch of bowel into the cystoplasty. There is no evidence of urethral insufficiency on the urodynamic study as there is no leakage with Valsalva maneuvers. Therefore, procedures to either augment urethral resistance or close the urethra are not indicated. There is no indication to perform a supravesical urinary diversion since the lower urinary tract is still useful and can be further rehabilitated.

7. A 67-year-old man has an AUA Symptom Score of 25 and a bother score of 5. He has no history of urinary retention, infections or stones, and has normal renal function. DRE reveals a 25 g benign prostate. The next step is:

A. observation.
B. alpha-blocker.
C. 5-alpha-reductase inhibitor.
D. alpha-blocker and 5-alpha-reductase inhibitor.
E. photovaporization of the prostate.
ANSWER=B

This patient has a high symptom problem index with a significant bother score, therefore watchful waiting is not appropriate, and he should be offered intervention. A VA study of 1229 patients

randomized to placebo, alpha-blocker therapy, finasteride, or combination therapy with alpha-blockers plus finasteride showed the superiority of alpha-blocker therapy alone in improvement of symptoms and peak flow rate. Other than an additional reduction in prostate volume, combination therapy with finasteride did not provide significantly more symptom relief. Combination therapy may be beneficial in a man with an enlarged prostate, however, there is no indication that the prostate is enlarged in this individual and, therefore, the initial cost and potential adverse effects of combination therapy are not justified in this untreated patient. This patient has no absolute indication for prostatectomy and should be initially offered medical therapy with alpha-blockers. Medical therapy of prostatic symptoms has shown a reduction in BPH progression with combination therapy, though this question focuses on symptomatic relief in a patient without significant prostatic enlargement, which would be best achieved by alpha-blockade alone.

8. A 32-year-old man has azoospermia and semen volume of 3.1 ml. Both testes are 5.0 cm in longitudinal axis, and FSH is 3.8mlU/ml (normal 2 - 1 2mlU/ml). The next step is:
A. scrotal ultrasound.
B. clomiphene citrate.
C. testis biopsy.
D. scrotal exploration for microsurgical reconstruction.
E. percutaneous epididymal sperm aspiration.
ANSWER=D
When testis longitudinal axis is > 4.5 cm and FSH is < 7.6mlU/ml, 96% of azoospermic men will have obstructive azoospermia. Scrotal exploration for reconstruction may be directly undertaken without the need for a testis biopsy. Because the likelihood of epididymal obstruction requiring epididymovasostomy is high, percutaneous epididymal sperm aspiration should not be performed in these patients, as the epididymis may be permanently damaged preventing subsequent epididymovasostomy. Scrotal ultrasound is not sensitive enough to identify vasoepididymal obstruction, and clomiphene citrate would not be helpful in a patient with obstructive azoospermia..

9. A 29-year-old G2P2 woman with episodic hypertension is 28 weeks pregnant. She is now found to have a 4 cm left adrenal pheochromocytoma. The next step is alpha-blockade with phenoxybenzamine and:
A. immediate laparoscopic adrenalectomy.
B. immediate open adrenalectomy.
C. elective adrenalectomy following term vaginal delivery.
D. adrenalectomy at time of caesarean section after fetal maturity.
E. adrenalectomy at time of vaginal delivery after fetal maturity.
ANSWER=D
It is clear that prompt surgical resection is the only effective treatment of pheochromocytoma. The one accepted exception is a pheochromocytoma in a late term pregnancy. In this setting, the patient should be treated with alpha-adrenergic blockade with pnenoxybenzamine until the fetus has reached maturity to manage the hypertension. At this point, she should undergo caesarean section and tumor resection in one operation. The patient should not undergo the stress of vaginal delivery.

10. A 54-year-old man with a rising PSA after radiation therapy elects androgen deprivation therapy. His PSA is 8.4 ng/ml, and his bone scan is negative. Bone mineral density will be best preserved with:
A. GnRH agonist.
B. GnRH antagonist.
C. intermittent GnRH agonist.
D. bilateral orchiectomy with calcium and Vitamin D.
E. diethylstilbestrol.
ANSWER=E
Osteopenia and osteoporosis are recognized as major long-term complications of hormonal deprivation therapy. As men age, they have a pre-existing risk of osteopenia. This is increased upon hormonal deprivation due to the loss of circulating estrogens. In men, the sole source of estrogen is peripheral conversion of testosterone by aromatase. In men who receive pharmacologic or surgical castration, loss of testosterone results in loss of estrogen. Use of estradiol in men results in loss of endogenous testosterone through suppression of the hypothalamic-pituitary axis. As such, men receiving estradiol will have suppression of endogenous estrogen production, but the exogenously administered estrogen preserves bone density.

11. A 35-year-old man is a heterozygous carrier of the delta-F508 mutation. Prior to testing his wife, his chance of having a child with cystic fibrosis is:
A. 1 in 2.
B. 1 in 4.
C. 1 in 25.
D. 1 in 100.
E. 1 in 625.
ANSWER=D
Cystic fibrosis is an autosomal recessive disease with a carrier frequency of 1 in 25. Cystic fibrosis mutations may be severe or mild. Accounting for approximately 70% of cystic fibrosis alleles, the delta-F508 genotype is the most common severe mutation, and results from a three base pair deletion in exon 10 of the cystic fibrosis gene. If both alleles carry the severe mutation, offspring will be affected with the systemic and pulmonary form of cystic fibrosis. Without a priori knowledge of his partner's genotype, the probability of offspring with cystic fibrosis born to a heterozygous carrier is 1:25 x 1:4 = 1:100.

12. A CT scan demonstrates a new 4 cm nodule in the left adrenal gland of a 58-year-old man who underwent a right radical nephrectomy for RCC eight years previously. He has mild hypertension that is well-controlled medically and is otherwise healthy. An MRI scan demonstrates the adrenal nodule to be isointense with the liver on T2-weighted images. The next step is:
A. clonidine suppression test.
B. MIBG scan.
C. needle biopsy.
D. adrenalectomy.
E. repeat CT scan in six months.
ANSWER=D
Many patients with RCC manifest asynchronous metastases which when solitary and resectable are best managed surgically, hence adrenalectomy is the best choice. This approach has been associated with prolonged disease-free survival, especially when the interval between the initial diagnosis and metastasis is greater than one year. Neither the clinical nor radiographic data in this case are suggestive of pheochromocytoma, which would be expected if the nodule was hyperintense compared to the liver on T2-weighted images. A benign adrenal adenoma is possible, but in view of the history of RCC it is a diagnosis of exclusion. Waiting six months to determine if the lesion has change radiographically places the patient at risk for progressive metastatic disease. The malignant potential of adrenal tumors is notoriously difficult to determine on a needle biopsy.

13. A 65-year-old man on warfarin develops urinary retention secondary to BPH. He has failed treatment with tamsulosin. His cardiologist recommends that warfarin not be discontinued. The next step is:
A. TUNA.
B. finasteride.
C. laser prostatectomy.
D. TUIP.
E. transurethral electrovaporization of the prostate.
ANSWER=C
This patient requires a procedure that can eliminate the prostatic obstruction yet allow him to continue his anticoagulation therapy. Of the options provided, non-contact laser prostatectomy, either non-contact or holmium laser enucleation, is able to accomplish these goals. TUNA and TUMT are generally indicated for men with moderate to severe symptoms of BPH who desire minimally invasive treatment. TUIP and transurethral electrovaporization of the prostate are contraindicated in men who are being treated with systemic anticoagulation.

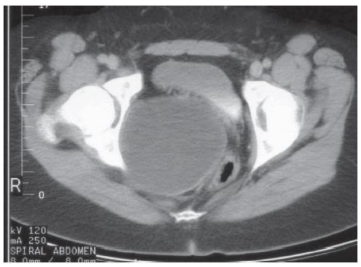
14. A 27-year-old woman with irritable bowel syndrome passes a 4 mm calcium phosphate calculus. 24-hour urine collection reveals low urinary citrate. She refuses pharmacologic therapy. Treatment includes oral hydration and:
A. limit tea.
B. drink milk.

C. drink lemonade.
D. limit animal protein.
E. limit carbonated water.
ANSWER=C
Hypocitraturia is often associated with chronic diarrheal states. While the threshold for normal urinary citrate is controversial, a 24-hour urinary citrate level less than 320 mg generally identifies hypocitraturia. For a patient who refuses pharmacologic therapy, citrus beverages such as lemonade and orange juice increase urinary volume and citrate excretion. Carbonated water may also increase urinary citrate levels. Milk products may be useful in hyperoxaluria associated with chronic diarrhea. Tea is high in oxalate, and may be involved in calcium oxalate lithiasis. Protein intake increases urinary calcium, oxalate and uric acid excretion, and is not specifically involved in citrate excretion.

15. A 62-year-old man with Gleason 6, T1c adenocarcinoma of the prostate opts for radical prostatectomy. PSA is 15 ng/ml, and bone scan reveals two areas of intense abnormality in the right hemi-pelvis. Plain films are normal. The next step is:
A. Prostascint scan.
B. bone biopsy.
C. MRI scan of pelvis.
D. GnRH agonist.
E. radical prostatectomy.
ANSWER=C
The clinical scenario is unlikely to be associated with bone metastasis, but the abnormal bone scan in this area should be evaluated. Plain films carry a low sensitivity for the detection of bone metastasis, and as such, their main purpose is for the detection of other explanations for the bone scan findings such as fracture or degenerative disease. In the event the plain films are normal, the bone scan findings remain unexplained, and further evaluation is warranted. Bone biopsy is too invasive of a test given the low likelihood of metastasis. MRI scan is the most sensitive radiologic test to screen for bone metastasis after radionucleotide imaging. Lesions on plain radiography must involve at least 50% bone loss to be visible.

16. A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5. Serum electrolytes reveal Na 140mEq/l, K 3.4mEq/l, CI 112mEq/l, and CO2 20mEq/l. The next step is:
A. serum aldosterone.
B. serum renin.
C. serum parathormone.
D. 24-hour urine citrate.
E. 24-hour urine potassium.
ANSWER=D
RTA can be caused by a variety of disorders that interfere with the ability of the renal tubule to secrete hydrogen ion. There are two major types; type 1, classic or distal; and type 2, proximal. Type 1, distal RTA, occurs due to a defect in the distal nephron. The normal kidney can respond to various stimuli by excreting sufficient free hydrogen to produce a minimum urine pH of 4.0 to 4.4. Inability of the kidney to acidify urine to a pH of less than 5.4 is a sign of distal RTA. Most patients with this disorder have a urine pH greater than 6. Patients with distal RTA have a hypokalemic, hyperchloremic metabolic acidosis. These patients are prone to urolithiasis and can develop nephrocalcinosis. Low urinary citrate in this setting is diagnostic.

17. An 18-year-old girl has primary amenorrhea and recurrent UTIs. Her pelvic ultrasound shows a large cystic lesion. CT imaging is shown in exhibit 1. The most frequent associated condition is:
A. renal agenesis.
B. primary megaureter.
C. ectopic ureter.
D. multicystic dysplastic kidney.
E. UPJ obstruction.



ANSWER=A
This patient has a hematocolpos due to vaginal obstruction, the Mayer-Rokatanski-KusterHauser syndrome which occurs in 1:4000 female births. This syndrome is composed of vaginal agenesis or absence with a rudimentary uterus, normal ovaries, and normal external genitalia. Absence or agenesis of the vagina is a developmental error of the ureterovaginal canal or the vaginal plate with failure of mullerian duct fusion. Renal anomalies are common with over one third of patients noted to have renal agenesis, ectopia or fusion abnormalities. Skeletal anomalies have been reported in 12% of girls and usually involve the spine, limbs or ribs. Diagnosis of this condition is made most often at the time of puberty in association with amenorrhea. Occasionally, it is noted in the neonatal period when evaluating a pelvic mass.

18. A 56-year-old man with a palpable nodule on DRE and a PSA of 15.2 ng/ml has Gleason 8 prostate cancer. The administration of eight months of neoadjuvant hormone ablation therapy prior to radical retropubic prostatectomy has been shown to result in:
A. prolonged biochemical-free survival.
B. prolonged overall survival.
C. decreased local recurrence.
D. decreased positive margins.
E. decreased seminal vesicle involvement.
ANSWER=D
This patient's tumor profile is most consistent with locally advanced disease. Locally advanced prostate cancer has been proven difficult to treat and is likely best managed with multi-modal therapy. Numerous authors have suggested that neoadjuvant hormone ablation therapy might improve outcomes in these patients. Unfortunately, all of the seven randomized clinical trials (consisting of over 1400 patients) that compared three months of neoadjuvant hormone therapy to placebo prior to prostatectomy failed to show any survival advantage in the neoadjuvant group. In fact, the only difference noted between the two groups was that neoadjuvant patients had a lower positive margin rate that did not translate into a biochemicalfree, disease-specific or overall survival advantage with follow-up of up to six years. A recent randomized clinical trial from Canada compared 3 vs. 8 months of neoadjuvant therapy and found no difference between the arms.

19. A 26-year-old with a spinal cord injury undergoes pressure flow urodynamics. During filling, he complains of severe headache, diaphoresis, and facial flushing. The spinal cord lesion most likely responsible for this phenomenon is:
A. complete and located below S1.
B. complete or incomplete and located between L1 and L5.
C. incomplete and located between C1 and T6.
D. incomplete and located between T6 and L5.
E. complete and located above T6.
ANSWER=E
Autonomic dysreflexia is characterized by acute hypertension, bradycardia, severe headache, vasoconstriction below the lesion, and vasodilation above the lesion. It is due to exaggerated sympathetic discharge in response to stimuli below the level of the lesion. This most likely occurs in spinal cord injured patients with complete lesions above T6, the location of sympathetic ganglia. It is an emergency and must be treated immediately by removal or reversal of the stimulus. The most common stimulus is distension of a hollow viscus, such as during urodynamic testing.

20. Currently manufactured extracorporeal Shockwave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:
A. smaller focal volume.
B. lower focal pressure.

C. larger focal volume.
D. higher focal pressure.
E. shorter rise time.
ANSWER=A
A reduction in the focal volume is a geometric result of enlarging the aperture of the shock wave generator. Newer generation lithotriptors cause little pain, but have a small focal volume and high focal pressure. The higher retreatment rates with newer lithotriptors may be due, in part, to the smaller focal volume. Accurate placement of the stone in the focus is critical with these lithotriptors.

21. The most frequent post-operative complication of partial nephrectomy is:
A. bleeding.
B. urinary fistula.
C. renal failure.
D. UTI.
E. renal infarction.
ANSWER=B
In a recently reported large series of partial nephrectomies, urinary fistula was reported as the most frequent complication (17%), followed by renal failure, infection, bleeding, and vascular thrombosis. Fistulas occurred more frequently in larger, centrally located tumors and those removed with an ex vivo approach. UTI and renal infarction are infrequent complications. In more contemporary series of laparoscopic partial nephrectomies, urinary fistula is still the most common complication.

22. A 38-year-old woman with a T6 spinal cord injury is treated with an indwelling catheter and oxybutynin for five years. She has severe urinary incontinence around the catheter and a patulous urethra at cystoscopy. Videourodynamics performed with a urethral catheter balloon occluding the urethra shows detrusor overactivity, a bladder capacity of
75 ml, and bilateral grade IV VUR. The next steps are:
A. antimuscarinics and suprapubic tube placement.
B. antimuscarinics, urethral sling placement, and CIC.
C. antimuscarinics, collagen injection, and CIC.
D. urethral sling placement, augmentation cystoplasty, and CIC.
E. ileovesicostomy.
ANSWER=D
A T6 spinal cord injury would be associated with severe detrusor overactivity and detrusor sphincter dyssynergia, in most instances. A suprapubic tube would not help with the stress incontinence that has developed due to sphincteric damage from the longstanding urethral catheter. The patient already has severe detrusor overactivity and reflux, despite antimuscarinic use. Therefore, a sling alone will still likely be associated with detrusor overactivity-induced leakage, and may intensify the risk of upper tract damage. Ileovesicostomy would likely be associated with ongoing urethral leakage, again due to the damaged sphincter. Collagen may help improve outlet resistance, but performing CIC repeatedly through the injected area will likely render any beneficial effect meaningless as the collagen gets molded due to chronic catheterization. An augment, coupled with a sling will take care of the detrusor overactivity, and the damaged sphincteric unit. The patient would need to CIC.

23. A 32-year-old man with inflammatory bowel disease has passed two calcium oxalate stones. 24-hour urine collection reveals elevated oxalate. The treatment is:
A. restrict oxalate.
B. restrict sodium.
C. calcium.
D. thiazides.
E. potassium citrate.
ANSWER=C
Enteric hyperoxaluria is commonly associated with inflammatory bowel disease or short-gut syndrome. Malabsorption increases the colonic permeability of oxalate by causing fat and bile to bind to intraluminal calcium, leaving oxalate unbound and free to traverse the colonic epithelium. Restricting oxalate is generally insufficient as the cause is not an overabundance of oxalate, and compliance is difficult for regimens intending to eliminate all oxalate sources. Oral calcium binds to the free oxalate and prevents its absorption.

24. A 64-year-old man undergoes 12 weekly bladder instillations of BCG after TURBT of a high-grade stage T1(A) TCC. Six weeks after receiving his last treatment, he undergoes a cystoscopy and CT urogram which are normal. However, a voided cytology shows highly atypical cells suspicious for malignancy. The next step is:
A. bilateral ureteral catheterization and barbotage for cytology.
B. cold cup biopsy of the prostatic urethra.
C. brush biopsy of both upper collecting systems.
D. repeat cystoscopy with bladder biopsy and retrograde pyelography.
E. administration of monthly BCG instillations for one year.
ANSWER=D
Almost all persistently positive cytologies in the first six months after BCG treatment for T1 or Tis disease are due to disease in the bladder, and in this setting an extensive search for extravesical disease is not indicated. In addition, cytology may continue to revert to normal for three months after the last BCG treatment. Repeat cystoscopy, upper tract evaluation, and bladder biopsy is the most effective way to detect a recurrence. Disease can also recur in the prostatic urethra; however, transurethral bladder biopsy is the most effective means by which to make the diagnosis.

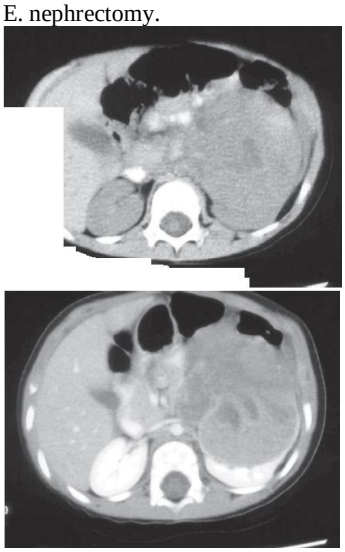
25. Aldosterone secretion is stimulated by:
A. hyperkalemia and hyponatremia.
B. hyperkalemia and hypernatremia.
C. hypokalemia and hyponatremia.
D. hypokalemia and hypernatremia.
E. ACTH.
ANSWER=A
Aldosterone production and secretion are regulated largely by angiotensin II and by changes in the plasma concentrations of sodium and potassium. The role of ACTH in the control of aldosterone secretion is generally believed to be only permissive, subservient to the reninangiotensin system and potassium. Direct infusion of potassium and depletion of body sodium are both potent physiologic stimuli for the secretion of aldosterone.

26. For patients with a 1 cm proximal ureteral stone, placement of an internal stent at the time of SWL will result in:
A. a higher stone free rate.
B. a lower complication rate.
C. less hematuria.
D. increased irritative voiding symptoms.
E. reduced analgesic requirements.
ANSWER=D
A randomized study demonstrated that stent placement at the time of SWL in patients with 1-2 cm solitary renal stones or proximal ureteral calculi less than 2 cm did not improve stone free or retreatment rates, lessen pain or hematuria. However, stent insertion was associated with an increase in irritative voiding symptoms.

27. A 42-year-old woman undergoes TURBT and random bladder biopsies for a solitary tumor at the dome of the bladder. Pathology reveals a high-grade T2 TCC at the dome and CIS on the left lateral wall. Metastatic work-up is negative. The next step is:
A. intravesical BCG therapy.
B. intravesical BCG therapy followed by repeat TURBT.
C partial cystectomy.
D. partial cystectomy followed by intravesical BCG.
E. radical cystectomy.
ANSWER=E
The standard of care for muscle-invasive bladder cancer is neo-adjuvant chemotherapy followed by radical cystectomy. There are, however, some rare cases where partial cystectomy may be a reasonable option. These occur in patients with good capacity bladders, solitary tumors and location in area that allows a 1- to 2-cm margin of resection, such as the dome. In the case described here, the patient also has CIS elsewhere in the bladder, which is an absolute contraindication to partial cystectomy. Intravesical BCG, while useful in treating CIS, is not adequate treatment for a muscle-invasive lesion.

28. A two-year-old girl has abdominal tenderness 24 hours after minor flank trauma. Her initial hematocrit was 33% and decreased to 28%. She remains hemodynamically stable. Her

urine is clear. Images from an abdominal CT scan without and with contrast are shown in exhibits 1 and 2. Chest x-ray is normal. The best definitive management is:
A. observation.
B. transfusion of packed RBCs.
C. renal arteriography.
D. flank exploration and repair.
E. nephrectomy.



ANSWER=E
The CT images show a complex mass of the left kidney. This is not simply a renal fracture. Renal tumors, particularly a Wilms' tumor are more susceptible to injury. The child remains stable and therefore does not need to be transfused. A renal arteriogram is premature. This is not a simple renal fracture and therefore exploration and repair is not warranted. The child will need a nephrectomy once stabilized in order to treat her tumor.

29. A 42-year-old man has severe right flank pain and microscopic hematuria. CT scan demonstrates a 5 mm distal ureteral calculus and forniceal extravasation. Following adequate pain control, the next step is:
A. SWL.
B. ureteral stent.
C ureteroscopy.
D. observation.
E. percutaneous nephrostomy.
ANSWER=D
Forniceal extravasation, noted during CT scan, often occurs in the presence of a small, obstructing ureteral calculus. Urine extravasates from a ruptured caliceal fornix into the renal sinus where it is absorbed by lymphatics. Usually, intervention is not necessary except when the urine is infected, the obstruction complete or if the pain is uncontrollable. Moreover, if the calculus is large and not likely to pass, intervention may also be necessary. In this case, the patient has an excellent chance that the stone may pass spontaneously. Therefore, observation initially is warranted.

30. A 63-year-old man who underwent radical cystectomy and ileal neobladder diversion for TCC of the bladder two years earlier has a positive NMP22 urine test and negative voided urine cytology. CT urogram and cystoscopy are both normal. The next step is:
A. surveillance.
B. urethral washings for cytology.
C random urethral biopsies.
D. bilateral ureteral washings for cytology.
E. bilateral ureteroscopy.
ANSWER=A
The NMP22 test is a FDA-approved bladder tumor marker for both diagnosis and surveillance. In patients being followed for bladder cancer with their native bladder intact, it has been shown to have superior sensitivity to urine cytology at least for low-grade tumors. However, it is not useful in patients with urinary diversion due to a high false positive rate. In this example, voided urine cytology and upper tract imaging, both of which are part of routine post-operative surveillance are negative. Given that the patient also has a negative urethra by cystoscopy, no further work-up is needed and routine post-operative cancer surveillance should be continued.

31. Non-adrenergic, non-cholinergic contraction of detrusor smooth muscle is mediated primarily by:
A. nitric oxide.
B. vasoactive intestinal polypeptide (VIP).
C adenosine triphosphate (ATP).
D. cyclic guanosine monophosphate (cGMP).
E. enkephalins.
ANSWER=C
Postganglionic parasympathetic neurons release acetylcholine, which activates muscarinic cholinergic receptors (primarily M2 and M3) on the detrusor and elicits a contractile response. Preganglionic and postganglionic neurons also contain purines such as adenosine triphosphate (ATP) and adenosine which produce depolarization of bladder smooth muscle and contraction by stimulation of purinergic receptors. Nitric oxide, cGMP, VIP, and enkephalins either have no effect on bladder contraction or are inhibitory.

32. A 47-year-old man with a 2.2 x 1.4 cm branched calculus undergoes PCNL through a single supracostal access. Operative time is three hours, and estimated blood loss is 400 cc. A renal pelvic perforation occurs toward the end of the procedure confirmed by mild extravasation of contrast. No residual stones are visualized fluoroscopically. The factor that precludes "tubeless" PCNL is:
A. size of the stone.
B. length of the procedure.
C site of percutaneous access.
D. perforation of the renal pelvis.
E. amount of blood loss.
ANSWER=D
Tubeless PCNL is safe if a limited number of percutaneous accesses are utilized, the stone burden is moderate, bleeding is not excessive, there is a reasonable expectation of a stone free state and no significant collecting system perforation occurs. In this case, neither the size of the stone, the length of the procedure or the blood loss would preclude a tubeless procedure. Likewise, supracostal access is not a contraindication for tubeless PCNL. However, the renal pelvic perforation is most safely handled with percutaneous drainage.

33. A 45-year-old man undergoes a partial cystectomy for urothelial cancer at the dome of the bladder. Post-operative pathology reveals pT3a disease with positive surgical margins within the perivesical fat. Post-operative CT scan is negative. The next step is:
A. surveillance.
B. intravesical BCG followed by surveillance.
C. bladder-sparing chemoradiation.
D. radical cystoprostatectomy.
E. chemotherapy followed by radical cystoprostatectomy.
ANSWER=E
Partial cystectomy is occasionally advocated for patients with muscle invasive bladder cancer at the dome of the bladder. This approach must be used selectively however and is probably inadequate in patients with highly aggressive tumors, like the case described here. He has locally advanced (pT3) disease with positive surgical margins, which portends a worse prognosis. Given this, surveillance alone is not appropriate, nor is intravesical BCG, as the patient has extravesical disease. While bladder sparing protocols are sometimes employed in selected patients, a young healthy patient with the poor prognostic factors warrants aggressive management with extirpative surgery. With current neobladder diversion techniques, his quality of life can be maintained following cystectomy. The major issue is whether this patient will benefit from additional chemotherapy and whether this should be given in the adjuvant or neoadjuvant setting. There is level I randomized clinical trial evidence that neoadjuvant chemotherapy followed by cystectomy improves survival when compared to cystectomy alone. The patient already has pathologically confirmed T3 disease, the next step is to initiate neoadjuvant chemotherapy followed by cystectomy.

34. A thirteen-year-old boy with testicular pain has a scrotal ultrasound shown in the exhibit. Tumor markers are normal. The next step is:
A. serial self-examinations.

B. testicular biopsy.
C. antibiotic therapy.
D. scrotal exploration.
E. radical orchiectomy.
ANSWER=A
The ultrasound demonstrates testicular microlithiasis, a lesion of unknown significance in children. Because it has been associated with tumors in adult testes, serial self-examinations are recommended, although the risk is unknown, and possibly no higher than the general population.

35. A 48-year-old-man with prior stones has a mildly symptomatic 3 mm ureteral stone with hydronephrosis confirmed by CT scan one month ago. The next step is:
A. CT scan within one week.
B. CT scan in one month.
C stent placement.
D. ureteroscopy and stone extraction.
E. SWL.
ANSWER=A
Nearly all ureteral stones less than 4 mm will pass by 40 days. Further assessment of this stone is indicated soon as sufficient time for stone passage has been allowed. There is no definitive evidence that a procedure is indicated at this stage.

36. A 48-year-old woman with diffuse, biopsy-proven CIS receives an initial six week induction course of BCG that is poorly tolerated. She undergoes repeat TURBT at three months, again revealing extensive CIS. The best next step is:
A. radical cystectomy.
B. perioperative mitomycin C
C another induction course of full strength BCG.
D. induction mitomycin C with maintenance.
E. another induction course of 1/4 strength BCG.
ANSWER=A
Although there is a small chance of additional benefit from time and/or another induction course of BCG, in the situation of BCG-refractory CIS, radical cystectomy is recommended in patients who can undergo surgery. There is a substantial risk to progression and "adverse consequences of delaying cystectomy make this the preferred treatment." This is especially true in this patient who did not tolerate the BCG. Perioperative mitomycin C or induction and maintenance mitomycin C have little efficacy in this situation. There is little data to support reduction to 1/4 strength BCG.

37. A patient with bladder outlet obstruction secondary to BPH has an elevated serum reatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is grade III VUR on videourodynamics. The renal function abnormalities and ureteral changes are related to:
A. compression of the ureter at the ureterovesical junction.
B. the development of high grade VUR.
C increased urethral resistance.
D. high voiding pressure.
E. sustained high filling pressure.
ANSWER=E
Renal and ureteral impairment in BPH are related to high pressure chronic retention. High voiding pressures if not sustained for long periods do not usually induce ureteral changes nor renal functional impairment. While compression of the ureter at the ureterovesical junction might impair ureteral urine delivery to a degree, sustained bladder pressure elevations are required for the upper tract abnormalities described. VUR also results from the high pressures.

38. On the first post-operative day after PCNL, an antegrade nephrostogram shows contrast filling the right colon as well as the right kidney. The next step is:
A. remove nephrostomy tube.
B. withdraw nephrostomy tube into colon and place internal ureteral stent.
C replace nephrostomy tube with CT-guidance.
D. percutaneous retroperitoneal drain.
E. colostomy.
ANSWER=B
Colonic injury occurs during PCNL when the colon occupies a retro-renal location. Since the injury is typically retroperitoneal, withdrawal of the nephrostomy tube into the colon and placement of an internal ureteral stent provides maximum drainage of the kidney and colon and allows the colonic and renal injuries to heal within a few days to a week.

39. Following TURBT for papillary TCC of the bladder, peri-operative instillation of mitomycin C:
A. is unnecessary for patients with a small, solitary, low grade tumor.
B. is most effective in acidic urine.
C must be given within 24 hours of the resection.
D. must be followed by an induction course of intravesical therapy.
E. should be delayed for 24 hours if an extraperitoneal perforation occurs.
ANSWER=C
A meta-analysis of seven randomized trials comprising nearly 1500 patients with Ta-T1 bladder cancer with a median follow up of 3.4 years has demonstrated that one immediate instillation of chemotherapy after TURBT results in a 40% reduction in tumor recurrence. Patients with single and multiple tumors benefit and tumor size did not stratify patients who benefited. The timing of instillation appears to be critical. In all studies, the instillation was given within the first 24 hrs. One study has demonstrated that if the instillation is given after 24 hours, the risk of recurrence increases 2-fold. In terms of efficacy, no specific drug appears superior. Studies have shown mitomycin C, doxirubicin, epirubicin and thiotepa to be beneficial. Perioperative instillation is contraindicated in the setting of overt or suspected extra or intraperitoneal perforation as severe complications have been reported in that setting. In the meta-analysis, it was determined that approximately eight patients would require treatment to prevent one recurrence that would translate into a cost effective strategy using any of the commonly available intravesical chemotherapy agents. Mitomycin C is most effective in the setting of alkaline urine.

40. After six months of therapy with an LH-RH analogue, a man with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:
A. increased Leydig cell sensitivity to minute amounts of LH.
B. reflex increase in ACTH.
C. increased adrenal cortical sensitivity to ACTH.
D. failure to suppress dehydroepiandrosterone.
E. peripheral conversion of estrogen into testosterone.
ANSWER=D
LH-RH analogues down regulate pituitary cell LH-RH cell surface receptors and totally block LH release and synthesis. Leydig cells may experience an upregulation of LH receptors, but there is no LH available for binding. The production of dehydroepiandrosterone and androstenedione, the principal adrenal androgens, is regulated by ACTH. Both of these adrenal androgens can be converted to testosterone peripherally but constitute no more than 10% of total testosterone. Manipulations of the LH-RH Leydig cell axis do not affect adrenal androgen production. Peripheral conversion of androgens to estrogens is unidirectional.

41. A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 ng/ml/hr (normal is 0.5-1.6). The next step is:
A. renal angiography.
B. renal venous renin sampling.
C captopril renogram.
D. radical nephrectomy.
E. partial nephrectomy.
ANSWER=E
Reninomas are rare renal tumors associated with hypertension, hypokalemia, and a solid small renal mass. The critical test is plasma renin activity that is usually extremely high. Almost all are shown on CT scan as a hypodense mass that is hypovascular. In most cases, it is not necessary to control the renal pedicle and an arteriogram is not mandatory. The patient should be treated with nephron sparing surgery, i.e. resection or partial nephrectomy because these tumors are benign in nature.

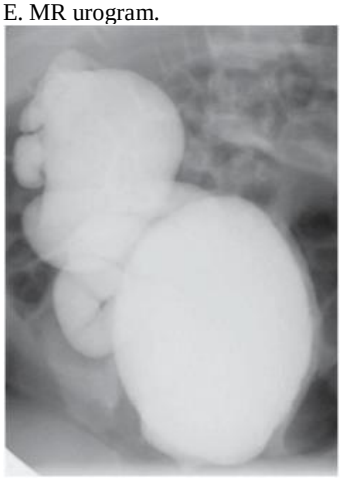
42. A seven-year-old boy with a myelomeningocele has failed antimuscarinic therapy and CIC for a non-compliant

neurogenic bladder. He undergoes a mechanical bowel prep and receives preoperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he develops acute, severe hypotension. The most likely cause is:
A. dehydration secondary to bowel prep.
B. sepsis.
C latex allergy.
D. autonomic dysreflexia.
E. unrecognized iliac venous compression.
ANSWER=C
Dehydration would usually present at the time of induction of anesthesia. Although sepsis is possible, it is unlikely to be acute. Unrecognized bleeding or pressure on the vena cava are unlikely given the operative exposure. Autonomic dysreflexia is seen in high-level spinal cord injury patients and is associated with hypertension. Increasing numbers of patients with myelodysplasia are allergic to latex. Latex precautions should be considered in all myelomeningocele patients.

43. A 28-year-old man has the following hormone parameters: total testosterone 840 ng/d (normal 300-1000 ng/dl), prolactin 6 ng/ml (normal 1-15 ng/ml), LH 0.2 mlU/ml (normal 3-18 mlU/ml), FSH 0.4 mlU/ml (normal 1-15 mlU/ml). He is well-virilized but has testes that are 10 ml in volume bilaterally. The most likely diagnosis is:
A. Kallmann syndrome.
B. Klinefelter syndrome.
C Kartagener syndrome.
D. exogenous testosterone use.
E. bioinactive LH syndrome.
ANSWER=D
While low levels of pituitary gonadotropins are associated with Kallman's syndrome (absent gonadotropins, anosmia and midline defects), they are not associated with Klinefelter's syndrome where they are markedly elevated. The hormone pattern is not associated with either bioinactive LH (where levels are normal but LH is non-functional) or Kartagener syndrome. The suppressed gonadotropins, associated with good virilization and normal testosterone levels are a classic finding in men using exogenous testosterone.

44. A 49-year-old man with diabetes and hypertension had an 8 cm solid renal mass. Preoperative cardiac angiography reveals a 90% occlusion of the right coronary artery and he undergoes bare metal stenting across the blockage. The minimum delay before surgery is:
A. 2 weeks.
B. 6 weeks.
C. 3 months.
D. 6 months.
E. 12 months.
ANSWER=B
Perioperative coronary stent thrombosis is a catastrophic complication that can occur in patients receiving both bare-metal and drug-eluting stents. Noncardiac surgery and most invasive procedures increase the risk of stent thrombosis especially when the procedure is performed early after stent implantation. This is because stents are not yet endothelialized early after placement, antiplatelet therapy is often discontinued in the periprocedural period, and surgery creates a prothrombotic state. Avoidance of preoperative revascularization or stent implantation, appropriate stent type selection when stent implantation cannot be avoided, delay of noncardiac surgery, continuation of antiplatelet therapy in the perioperative period, and increased collaboration between different disciplines (surgery, anesthesiology, and cardiology) all can help minimize the risk of perioperative stent thrombosis. If surgery needs to be performed within 12 months from revascularization, then bare metal stent implantation is likely preferable to drug eluting stents, because bare metal stents endothelialize more rapidly and may therefore carry a lower risk of stent thrombosis. The risk of late stent stenosis less than six weeks after placement of a bare metal stent ranges from 3.9-5%. Thus withdrawal of antiplatelet therapy may be considered after six weeks.

45. A three-year-old girl has recurrent febrile UTIs in spite of prophylactic antibiotics. Her VCUG is shown in the exhibit. The next step is:
A. voiding diary.
B. creatinine clearance.
C. renal scan.
D. urodynamics.
E. MR urogram.



ANSWER=C
This child has massive grade V reflux into the right kidney. No information is available from the VCUG about the left kidney or the function of the right kidney. The abnormal calyces on the VCUG suggest that the function may be less than optimal. A renal scan is most sensitive to determine split function, which will help determine whether reconstruction versus nephrectomy is suitable. An MR urogram will also give this information, however, the MR will mostly likely require either a general anesthetic or closely monitored sedation. A voiding diary will be not be particularly helpful with the massive reflux. Creatinine clearance may be abnormal but it will not be possible to tell which kidney has the deficit.

46. The primary storage site for spermatozoa in the human is the:
A. ampulla of the vas.
B. bulbourethral gland.
C. caput epididymis.
D. ejaculatory duct.
E. seminal vesicle.
ANSWER=A
The majority of spermatozoa in the human ejaculate is stored in the ampulla of the vas. Less than half is stored in the cauda epididymis. Of the spermatozoa stored within the epididymis, half are in the cauda. At ejaculation there is discharge of spermatozoa from the distal epididymis, proximal vas and the vasal ampulla.

47. The yearly whole-body radiation exposure for a Urologist should be no greater than:
A. 5 rad.
B. 5 rem.
C. 5 gray.
D. 5 sievert.
E. 5 becquerel.
ANSWER=B
The amount of radiation energy transferred to an object is different than the relative damage that a particular kind of radiation can cause. The gray describes the property of radiation representing the amount of energy transferred to an object. The units of rad and gray are proportional, with 100 rads equaling 1 gray. A different type of unit estimates biological cell damage, and is the sievert. Like rad and gray, the units of rem and sieved are proportional, with 100 rems equaling 1 sievert. The maximum annual whole-body radiation exposure recommended by the National Council on Radiation Protection is 5 rem. The becquerel measures radioactive decay, with 1 becquerel corresponding to 1 disintegration per second.

48. A 17-year-old girl underwent ileocystoplasty for neurogenic bladder four years ago. During an emergency cesarean section for dystocia, the vascular pedicle to the cystoplasty segment is divided. The next step is:
A. revascularization of the pedicle.
B. excise ileal patch; immediate ileal augmentation.
C. excise ileal patch; delayed sigmoid augmentation.
D. place suprapubic tube and drain.
E. observation with follow-up urodynamics.

ANSWER=E
Experimental studies have shown that the augmented bowel segment receives collateral blood flow from the native bladder. Interruption of the vascular pedicle may cause some decrease in the size of the augmented segment, but the neobladder remains intact. Intraoperative assessment of blood flow to the augmented segment immediately after ligation of the pedicle demonstrates decreased perfusion. However, perfusion returns to normal after eight weeks. Observation of the patient with repeat urodynamic studies is indicated. If this shows a significant decrease in functional capacity, consideration can be given to revision of the ileocystoplasty. Primary revision with sigmoid in this patient would be ill advised without a bowel prep. There should be no need for a suprapubic tube as extravasation is not likely. Immediate re-augmentation may not be indicated unless there is a demonstrable reduction in capacity or compliance.

49. The primary stimulus for ureteral peristalsis is:
A. stimulation of alpha-adrenergic receptors.
B. stimulation of beta-adrenergic receptors.
C. a bolus of urine.
D. increased intravesical pressure.
E. stimulation of cholinergic receptors.
ANSWER=C
Most investigators feel that stretching of the ureteral wall initiates and propagates ureteral peristalsis. Because the ureteral smooth muscle cells have numerous close contacts between them, muscular contraction is propagated along the ureter by these muscle cell connections. A bolus of urine does appear to be the primary stimulus for ureteral peristalsis. The autonomic nervous system does not appear to stimulate ureteral peristalsis. A completely denervated ureter, as is seen in renal transplantation, exhibits peristalsis immediately upon transplantation. Increased intravesical pressure is not a primary stimulus for ureteral peristalsis.

50. A 38-year-old obese man desires a biological child. Semen analysis shows a volume of 2.0 ml, 5.2 million sperm/ml and 40% motility. Serum testosterone is 312 ng/dl (normal 300 - 1000 ng/dl) and estradiol is 68 pg/ml (normal < 50 pg/ml). The next step is administration of:
A. estrogen.
B. anastrazole.
C. cabergoline.
D. testosterone.
E. clomiphene citrate.
ANSWER=B
A testosterone:estradiol ratio of less than 5:1 in a male is strongly suggestive of aromatase dysfunction, and is treated with aromatase inhibition including anastrazole 1 mg p.o. daily or 50 to 100 mg testolactone twice daily. Clomiphene citrate would increase both testosterone and estradiol but the ratio would remain unchanged. Cabergoline is a prolactin inhibitor, and exogenous testosterone would suppress spermatogenesis.

51. A neonatal ultrasound is shown in exhibits 1 and 2. The next step is:
A. renal ultrasound of parents.
B. hepatic ultrasound.
C. spinal ultrasound.
D. VCUG.
E. echocardiography and aortic ultrasound.
ANSWER=D
This child has a normal right kidney and classic left multicystic kidney. The lucencies seen on the right are due to normal renal pyramids. Parental evaluation could be considered if the child had autosomal dominant polycystic kidney disease. Hepatic fibrosis is associated with autosomal recessive polycystic kidney disease. Spinal abnormalities, cardiac defects, and coarctation of the aorta are not associated with a multicystic kidney. Vesicoureteral reflux is found in approximately 20-40% of children with a multicystic kidney. Renal scintigraphy is required to evaluate left renal function and confirm nonfunction.

52. A 62-year-old man develops urinary incontinence three months after a CVA. Urodynamic evaluation will most probably demonstrate detrusor overactivity and:
A. smooth sphincter synergia, striated sphincter dyssynergia.
B. smooth sphincter synergia, striated sphincter synergia.
C. smooth sphincter dyssynergia, striated sphincter synergia.
D. smooth sphincter incompetence, striated sphincter synergia.
E. smooth sphincter incompetence, striated sphincter incompetence.
ANSWER=B
After the initial acute episode during which acute urinary retention is common, a variable degree of recovery occurs and any residual neurological deficit becomes apparent over a few weeks or months. During this period symptoms of persistent bladder dysfunction may become apparent. A problem with impaired voluntary urinary control will generally have detrusor overactivity as a urodynamic correlate with symptoms of frequency, nocturia and urgency with or without urge incontinence. The bladder-neck opens normally with the involuntary bladder contraction, and the striated sphincter is synergic unless the patient tries to voluntarily inhibit the bladder contraction by forcibly contracting the striated sphincter. Detrusor-striated sphincter dyssynergia is extremely rare or non-existent in patients with isolated lesions above the brain stem.

53. A 52-year-old man with depression has a low libido. Physical exam reveals obesity but is otherwise normal. Morning serum testosterone is 290 ng/dl (normal > 300 ng/dl) sex hormone binding globulin is 11 nmol/l (normal 10 - 70 nmol/l) albumin is 4.9 g/dl (normal 3.5 - 5.2 g/dl) prolactin is 9 ng/ml (normal < 19 ng/ml) calculated free testosterone is 2.85% and calculated bioavailable testosterone is 220 ng/dl (75.8%) The next step is:
A. serum LH and FSH assay.
B. morning urinary Cortisol assay.
C. cranial MRI scan.
D. administer topical testosterone.
E. psychiatric referral.
ANSWER=E
Serum testosterone circulates in three forms. Approximately 2% is free, 30% is tightly bound to sex hormone binding globulin (SHBG,) and the remainder (approximately 68%) is loosely bound to albumin and other serum proteins. Free and bioavailable testosterone may be accurately calculated by albumin and SHBG values. In this patient, while the total testosterone is slightly low at 290 ng/dl, free testosterone is well above 2% and bioavailable testosterone is well above 68% at 75.8%. Normal bioavailable testosterone concurrently existing with low total testosterone is commonly encountered in men with obesity. As an endocrine etiology is unlikely in this patient with depression and low libido, psychiatric referral is indicated. LH assay is not indicated as bioavailable testosterone is adequate, and FSH assay reveals seminiferous epithelial function which is not of interest in this case. In a patient with a normal physical examination other than obesity, Cushing's syndrome is unlikely, and morning urinary Cortisol assay is not indicated. With prolactin in the normal range, a pituitary tumor is unlikely, and cranial MRI scan is not indicated. In a patient with depression, loss of libido and adequate bioavailable testosterone, psychiatric referral should be undertaken prior to testosterone therapy.

54. A nine-year-old girl has sepsis and vomiting two years after bilateral ureteroneocystostomy for VUR. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, C02 12mEq/l, and K 6.5mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:
A. cystoscopy and ureteral catheterization.
B. diuretic renal scan.
C. bilateral percutaneous nephrostomies.
D. cutaneous vesicostomy.
E. bilateral loop cutaneous ureterostomies.
ANSWER=C
This girl is likely to have post-operative ureteral stenosis with azotemia. Decompression will be necessary to medically stabilize her before reconstruction. This is most reliably accomplished by percutaneous nephrostomies which will not interfere with ultimate surgical revision of the ureterovesical anastomosis. Cystoscopy and ureteral catheterization is an option but can be technically challenging in the setting of post reimplant obstruction, especially when the previous reimplantation was performed in a cross-trigonal fashion. A diuretic renal scan may further confirm the diagnosis of obstruction but will not change the need for immediate relief of the obstruction in this septic patient. In addition, the renal scan may be less accurate in the setting of azotemia. Cutaneous vesicostomy will

not address the ureteral obstruction and loop ureterostomies will complicate future surgery to correct the ureteral obstruction.

55. A 48-year-old woman undergoes an uncomplicated transobturator sling procedure for stress urinary incontinence. She complains of left leg and thigh pain with abduction on the first postoperative day. The next step is:
A. MRI scan of the pelvis.
B. non-steroidal anti-inflammatory drugs.
C. sling explantation.
D. vaginal re-exploration and adjustment of sling tension.
E. sling incision.
ANSWER=B
Transient, self limited lower extremity pain following transobturator sling procedures occurs in 2-16% of patients undergoing this procedure. This symptom is usually attributed to a subclinical hematoma or a transient neuropathic phenomenon but may also be due to positioning. This generally resolves within several days and NSAIDs will help control the temporary pain. Persistent pain may indicate vaginal extrusion, thigh abscess or other complications related to the tape.

56. A 37-year-old woman has had a prior hysterectomy now complains of pelvic pressure and intermittent left flank pain. An ultrasound demonstrates severe left hydronephrosis, however, an IVP obtained one week later reveals normal upper tracts bilaterally. This same scenario is repeated over the next several months. A CT scan reveals a 2 cm cystic mass in the left hemipelvis. The next step is:
A. excision of the left pelvic mass.
B. left ureteral reimplantation.
C. tamoxifen.
D. ureterolysis.
E. ureteral stent.
ANSWER=A
This patient presents with a classic scenario of ovarian remnant syndrome. Residual ovarian tissue after oophorectomy will cyclically enlarge and result in symptomatology. This condition most commonly occurs after ovarian rupture during oophorectomy for endometriosis. Ureteral obstruction occurs in 5-10% of cases. Surgical excision of the mass should be curative while leuprolide depot can be effective in recurrent cases. Reimplantation and ureterolysis are not indicated for obstruction due to external compression by the ovarian remnant. Tamoxifen is not effective in controlling ovarian enlargement.

57. The most important risk factor for progressive hydronephrosis in patients with myelomeningocele is:
A. high grade VUR.
B. detrusor overactivity.
C. decreased detrusor compliance.
D. LPP > 40 cm of H2 0.
E. striated sphincter dyssynergia.
ANSWER=D
While all of the factors listed can produce hydronephrosis, a LPP of > 40 cm of water, if left untreated, has uniformly been associated with progressive hydronephrosis. High grade reflux is most likely secondary to the neurogenic bladder. Patients with an elevated LPP should be treated aggressively with CIC and antimuscarinics to prevent hydronephrosis. If this is not successful augmentation cystoplasty maybe indicated in the older patient and vesicostomy in the neonate or infant.

58. A 75-year-old man living in a skilled nursing facility with rapidly progressive Parkinson disease reports long standing erectile dysfunction, and chronic urinary incontinence. DRE reveals a 20 g benign prostate. Tamsulosin does not improve his symptoms. Pressure-flow urodynamics reveals a maximum flow rate of 10 ml/second, detrusor pressure at maximum flow of 30 cm H2 0, stress incontinence at maximum capacity of 450 ml, and a PVR of 300 ml. The next step is:
A. finasteride.
B. discontinue tamsulosin and start alfuzosin.
C. green light laser prostatectomy.
D. CIC by caregiver.
E. placement of artificial urinary sphincter.
ANSWER=D
This patient likely has multiple system atrophy (MSA) with rapidly progressive parkinsonism and long standing ED. Incontinence is due to severely impaired emptying and sphincteric dysfunction. Finasteride is unlikely to be helpful with a normal size prostate, and there is no evidence to suggest that an alternative alpha-blocker will be more efficacious. While urodynamics are consistent with moderate obstruction, prostate resection/treatment is unlikely to improve bladder emptying in patients with MSA and is associated with a prohibitive risk of worsening incontinence. Though incontinence is noted on urodynamics, it is only with a full bladder. If the patient has support to help with CIC, that should be initiated.

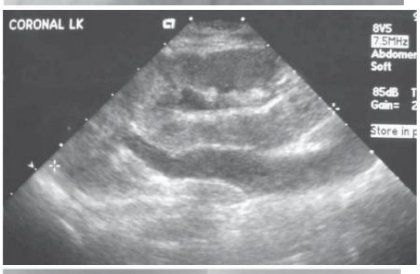
59. A 45-year-old woman becomes hypotensive during an attempt at laparoscopic removal of a non-functioning, hydronephrotic kidney. There is no evidence of intraabdominal bleeding. Oxygen saturation dramatically decreases, and she develops a new heart murmur. The next step is to:
A. reduce insufflation pressure; continue procedure.
B. insert bilateral chest tubes.
C. insert Swan-Ganz catheter.
D. place patient in the right lateral decubitus position with head up.
E. stop insufflation and release pneumoperitoneum.
ANSWER=E
The clinical findings are consistent with a CO2 embolism. This can lead to tachycardia, cardiac arrhythmias, hypotension, increased central venous pressure, hypoxemia, a "mill wheel" heart murmur and cyanosis. Treatment consists of immediate cessation of insufflation and release of the pneumoperitoneum. The patient should be placed head down in a left lateral decubitus position. Discontinuing nitrous oxide allows ventilation with 100% 02 thus reducing hypotension. Hyperventilation facilitates elimination of C02. If these measures are not successful, a central venous catheter can be inserted to aspirate gas. Cardiopulmonary bypass may be used to treat patients with a massive CO2 embolism and hyperbaric oxygen therapy should be considered if a cerebral gas embolism is suspected.

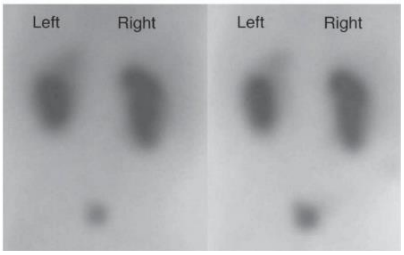
60. A two-month-old uncircumcised boy with a sacral dimple undergoes evaluation of a febrile UTI. Ultrasonography shows bilateral hydroureteronephrosis and a conus medullaris at the mid aspect of L4. VCUG shows bilateral Grade IV reflux, slight beaking of the bladder neck and a normal urethra. The next step is:
A. CMG.
B. cystoscopy.
C. MAG-3 renal scan.
D. circumcision.
E. vesicostomy.
ANSWER=A
This infant has a compromised urinary tract and a neurogenic cause must be considered. The conus normally ends above L2 and spinal ultrasound is a convenient and accurate method of screening in the neonatal period. Given his low conus, a CMG would be important to see if filling curve and storage pressure are abnormal. Circumcision is not mandatory. Vesicostomy at this point is premature and cystoscopy is not necessary. The hydronephrosis in this case is related to the bladder dysfunction and a MAG-3 scan is unnecessary.

61. A 65-year-old man with Parkinson's disease has urgency, nocturia, frequency, and urge incontinence. DRE reveals an enlarged prostate. The most likely etiology of his symptoms is:
A. impaired detrusor contractility.
B. detrusor overactivity.
C. detrusor sphincter dyssynergia.
D. decreased detrusor compliance.
E. antiparkinsonian medications.
ANSWER=B
Parkinson's disease results in relative dopamine deficiency and cholinergic predominance in the corpus striatum. Voiding dysfunction may occur in up to 70% of patients. The most frequent urodynamic finding is detrusor overactivity. Poor voluntary control of the striated sphincter may occur, but true dyssynergia is uncommon. Male patients with prostatic enlargement cannot be assumed to be symptomatic from bladder outlet obstruction, and voiding symptoms may actually worsen after prostatectomy because

of poorly sustained bladder contractions and abnormal sphincter relaxation.

62. A one-year-old girl is evaluated for pyelonephritis. A VCUG is shown in exhibit 1, an ultrasound of the left kidney in exhibit 2, and a furosemide renogram in exhibit 3. The next step is:
A. antibiotic prophylaxis.
B. upper pole nephrectomy.
C. ureteroureterostomy.
D. subureteric injection of implant.
E. cutaneous ureterostomy.





ANSWER=C
This patient has an ectopic ureter to the bladder neck. Substantial left upper pole parenchyma is seen on ultrasound, and upper pole function is documented on renal scan. Chemoprophylaxis is not a good long-term solution. It may prevent infection in the short-term but will not address the congenital abnormal ureteral insertion. Upper pole nephrectomy is not indicated since function in the upper pole is acceptable. The least morbid solution is a low ureteroureterostomy that does not require manipulation of the bladder either intravesically or extravesically.

63. Successful toilet training in children requires:
A. voluntary control over the periurethral smooth muscle.
B. volitional control over the internal sphincter.
C. autonomic control of detrusor contractions.
D. an increase in bladder capacity.
E. a decrease in bladder pressure.
ANSWER=D
Successful toilet training involves achievement of an adult pattern of urinary control and depends on the outcome of at least three separate events in the development of the bladder. First, bladder capacity must increase to serve as an adequate reservoir. Second, voluntarily control over the periurethral striated muscle sphincter must occur. Finally, direct central control over the spinal reflex that controls the detrusor smooth muscle must develop to voluntarily initiate or inhibit detrusor contraction. By the age of 4, most children have matured their urinary tract function and have developed an adult pattern of urinary control. The adult pattern is characterized during bladder filling by an absence of unstable or overactive detrusor contractions.

64. A 55-year-old continent woman has persistent UTIs ten months following a synthetic urethral sling. Cystoscopy reveals the sling protruding through the left anterior-lateral bladder wall with an encrusted 1.5 cm stone. The next step is:
A. cystolithalopaxy with repeat cystoscopy in three months.
B. transvaginal cystostomy and removal of intravesical portion of the sling with encrusted stone.
C suprapubic cystotomy with removal of the stone and intravesical portion of the tape.
D. cystolithalopaxy followed by retropubic exploration with extravesical explantation of the sling and closure of the bladder defect.
E. complete removal of the tape and stone through a retropubic and vaginal
approach and placement of autologous pubovaginal fascial sling.
ANSWER=C
Intravesical erosion of synthetic tapes have been reported and are either missed intraoperative perforations or they occur due to pressure necrosis with penetration of the bladder wall. The recommended treatment is removal of the foreign body from the bladder. Extraction of the intravesical portion through a suprapubic cystotomy results in disappearance of all symptoms. Complete removal of the tape is very difficult and may result in recurrent stress urinary incontinence. Cystolithalopaxy will not remove the tape leaving a persistent foreign body and nidus for recurrent stone formation and UTIs. Transvaginal cystotomy risks postoperative vesicovaginal fistula formation and using this operative approach it will be difficult to access the anterior bladder wall. Cystolithalopaxy will be unnecessary if the surgeon is planning a retropubic exploration.

65. A 65-year-old man who underwent placement of an intraurethral stent for treatment of a recurrent bulbar urethral stricture has a markedly decreased urinary stream three months postoperatively. Urethroscopy demonstrates obstructive tissue protruding through the stent. The next step is:
A. balloon dilation.
B. replace stent.
C urethroplasty.
D. suprapubic cystostomy.
E. endoscopic resection of tissue.
ANSWER=E
Hyperplastic tissue can sometimes protrude through endoluminal stents postoperatively. Careful resection of this tissue is often effective, as this hyperplastic reaction usually subsides over time. Balloon dilation is unlikely to be effective in alleviating obstruction due to luminal occlusion; unlike vascular plaques, the scar tissue associated with strictures is not compressible. Stent replacement at three months will be extremely difficult; likewise urethroplasty will require excision of the stent, with a high likelihood for substitution urethral reconstruction. Suprapubic cystostomy is only a temporizing measure that is not indicated in the absence of urinary retention.

66. A 16-year-old girl with a neurogenic bladder remains incontinent despite an aggressive program of CIC and antimuscarinic medications. Videourodynamic evaluation demonstrates a flaccid, large capacity bladder and low urethral resistance. The best long-term management is CIC and:
A. periurethral bulking agent.
B. bladder neck tubularization.
C an artificial urinary sphincter.
D. a pubovaginal fascial sling.
E. a Mitrofanoff procedure.
ANSWER=D
The best treatment in this situation is the pubovaginal sling. An advantage of the sling procedure for postpuberal females is that the dissection between the urethra and the vagina can be performed transvaginal^, an approach considered by many to be simpler than pelvic dissection required for placement of an artificial urinary sphincter. Bladder neck tubularization produces a significant reduction in bladder capacity and the frequent necessity for reoperations to correct problems with catheterization. Periurethral bulking agents can provide short-term improvement, however the long-term effectiveness remains open to question. A Mitrofanoff procedure will not solve the problem of low outlet resistance.

67. A 28-year old man has a one-year history of erectile dysfunction unresponsive to sildenafil citrate. His baseline erectile rigidity averages 70% with poor sustaining ability. He obtains a 20% erection following the administration of 10 meg of PGE-i. Duplex Doppler penile ultrasound parameters after injection demonstrate peak systolic velocities of 18 cm/s bilaterally. The next step is:

A. administer a second dose of intracavernosal PGEi.
B. change to vardenafil.
C. intracavernosal injection therapy.
D. cavernosometry.
E. pudendal arteriography.
ANSWER=A
Obtaining accurate information from duplex Doppler ultrasound requires that the patient obtain an erection similar in quality to his best quality spontaneous (non-medication assisted) erection at home. If this is not achieved, the concern is that sympathetic over activity may result in falsely abnormal erectile hemodynamics. The patient in this case has abnormal peak systolic velocities, however, he failed to obtain a sufficient erection to accurately assess his erectile history. Therefore, he should receive another dose of vasoactive agent intracavernosally. It has been estimated that greater than 50% of men will require more than one dose of intracavernosal vasoactive agent during erectile hemodynamic assessment.

68. The metabolic abnormalities most frequently encountered in patients with cystic fibrosis who develop nephrolithiasis are:
A. hypercalciuria and hypocitraturia.
B. hypercalciuria and hyperuricosuria.
C. hyperoxaluria and hypocitraturia.
D. hyperoxaluria and hyperuricosuria.
E. hyperuricosuria and hypocitraturia.
ANSWER=C
Patients with cystic fibrosis are at risk for developing nephrolithiasis. The metabolic defects most commonly encountered in this patient population include hypocitraturia and hyperoxaluria, due to increased gastrointestinal oxalate absorption and rapid intestinal transport. Several measures can be taken to attenuate stone activity including increased fluid intake, administration of pancreatic enzymes, a low fat and low oxalate diet, and potassium and calcium citrate therapy. Studies demonstrate hypercalciuria and hyperuricosuria are not encountered as commonly in these patients.

69. In a patient with Cushing's syndrome due to an adrenal adenoma, the changes in hormone secretion following a high dose dexamethasone suppression test are best represented by:
ACTH Urinary Free Cortisol
A. increase decrease
B. increase increase
C. unchanged unchanged
D. decrease decrease
E. decrease increase
ANSWER=C
Cushing's disease is different than Cushing's syndrome. Cushing's disease is due to increased Cortisol production by any cause (pituitary adenoma, ectopic ACTH, and adrenal adenoma). Patients with adrenal Cushing's syndrome have autonomous adrenal production of Cortisol, which suppresses ACTH. Exogenous administration of either low-dose or high-dose dexamethasone is unable to alter the autonomous adrenal production. Therefore, it results in no change in either ACTH or urinary free Cortisol. For pituitary adenomas, high-dose dexamethasone is capable of suppressing ACTH and urinary free Cortisol production.

70. A 20-year-old man undergoes a distal shunt (Al-Ghorab) for venocclusive priapism. Four hours later, he has a 70% rigid erection. The next step is:
A. proximal cavernosal-spongiosal shunt.
B. intracorporal phenylephrine administration.
C. corporal blood gas analysis.
D. pudendal arteriography.
E. cavernosal-saphenous vein shunt.
ANSWER=C
The purpose of a shunt procedure for venocclusive priapism is to oxygenate the penis. Often residual corporal smooth muscle paralysis and edema will leave the patient's penis tumesced and sometimes rigid. Following an Al-Ghorab shunt, grasping the penis at its base and squeezing will reduce arterial inflow and should result in detumescence, if the shunt is open. Confirmation can be made by drawing a blood gas and proving arterial oxygen levels. This should be done before returning to the operating room for a second procedure. An alternative approach would be to perform a penile duplex ultrasound to demonstrate any arterial inflow.

71. A 28-year-old woman is diagnosed with hyperparathyroidism and asymptomatic urolithiasis. CT scan reveals several bilateral 5-7 mm calyceal calculi, multiple punctate calcifications within the renal pyramids, and unobstructed collecting systems. Her calculous disease should be managed by:
A. staged SWL immediately prior to her planned subtotal parathyroidectomy.
B. simultaneous subtotal parathyroidectomy and bilateral SWL.
C subtotal parathyroidectomy followed by staged SWL.
D. subtotal parathyroidectomy, full metabolic stone evaluation, and directed medical therapy.
E. subtotal parathyroidectomy and increased hydration.
ANSWER=E
The patient is asymptomatic and her kidney is unobstructed; hence there is no reason to surgically treat her urolithiasis. Patients with hyperparathyroidism who need therapy for their stones can be treated either at the time of their parathyroid surgery or after the neck surgery. If the stones are removed prior to parathyroid surgery, they may recur in the interval between the stone procedure and the neck exploration. Furthermore, SWL is of little benefit in resolving problems of nephrocalcinosis; while it may decrease the stone burden, it alone will not render the patient stone free. Also, as a result of elective SWL therapy, the patient may actually become symptomatic. Simultaneous bilateral SWL is associated with a permanent decrease in total estimated renal plasma flow of 10%. Patients with hyperparathyroidism seldom have any other underlying abnormality making them prone to stone formation; as such, in the absence of stone growth, there is no reason to repeat the metabolic evaluation in this patient after stone removal. Indeed, the best policy in the asymptomatic patient with hyperparathyroidism and urolithiasis is to just observe them following their subtotal parathyroidectomy. The solitary calyceal stones as well as the nephrocalcinosis will dissolve or disappear spontaneously over a 10-year period in 75% of patients.

72. During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is inadvertently divided. The bowel segment likely to maintain normal blood supply is:
A. duodenum.
B. jejunum.
C ileum.
D. cecum.
E. ascending colon.
ANSWER=A
The duodenum is supplied by the pancreaticoduodenal and the gastroduodenal arteries which arise from the celiac trunk. All of the other bowel segments are supplied by branches of the superior mesenteric artery. Although ligation of the superior mesenteric artery, may not result in ischemic changes, assessment of bowel viability should be done. Primary repair of the vessel should be undertaken if feasible.

73. After a radical prostatectomy, a man complains of bothersome penile pain following orgasm. The next step is:
A. cystoscopy.
B. tamsulosin.
C cyclobenzaprine.
D. diazepam.
E. gabapentin.
ANSWER=B
Orgasmic pain or dysorgasmia occurs in a distinct minority of men after radical prostatectomy. This pain is located in the penis, testicles, perineum or abdomen and while usually of nuisance level, it can be incapacitating leading to avoidance of sexual relations. This pain may also occur after prostate radiation and in chronic pelvic pain syndromes. The condition is believed to result from bladder neck spasm. It is responsive to uroselective alpha-blockers. Cyclobenzaprine and diazepam are skeletal muscle relaxants. There is no role for gabapentin or cystoscopy in these patients.

74. A 39-year-old man with a large left varicocele requests vasectomy reversal four years after vasectomy. At scrotal exploration, he has rare nonmotile sperm in the right vas deferens and an absence of sperm in clear fluid from the left vas deferens. The next step is:
A. bilateral vasovasostomy.

B. left varicocelectomy and bilateral vasovasostomy.
C right vasovasostomy and left vasoepididymostomy.
D. left testis biopsy and intraoperative wet prep evaluation.
E. testicular sperm extraction.
ANSWER=A
With sperm in the vas and a patent abdominal vas deferens, right vasovasostomy is indicated. For men with a brief (< 10 years) obstructed interval or clear fluid in the vas deferens, the prognosis for return of sperm to the ejaculate is excellent after vasovasostomy alone, despite intravasal azoospermia. Epididymal exploration and intraoperative testis biopsy will not provide material information to affect treatment decisions. Varicocelectomy and vasovasostomy should not be performed simultaneously, as venous outflow from the testis after varicocele repair is dependent primarily on the vasal vessels that are divided during vasectomy or vasovasostomy, and testicular atrophy may result.

75. Retroperitoneal organs juxtaposed to the left kidney are:
A. adrenal, spleen, pancreas.
B. adrenal, pancreas, colon.
C spleen, jejunum, colon.
D. adrenal, colon, spleen.
E. spleen, duodenum, pancreas.
ANSWER=B
Cranially, the left kidney is bordered by the adrenal retroperitoneally and the spleen intraperitoneally along the superior and lateral borders of the upper pole. With excessive downward traction on the left kidney, as may occur with a percutaneous procedure, tension on the splenorenal ligament may result in a subcapsular splenic tear. The tail of the pancreas, also retroperitoneal, crosses the upper pole of the left kidney as well. More caudally and anteriorly, the kidney is bordered by the splenic flexure of the colon, which requires medial mobilization to expose the hilum of the kidney. Intraperitoneal structures that abutt the left kidney are the jejunum and spleen. Posteriorly, the upper 1/3 of the kidney - both right and left - lies on the inferior aspect of the diaphragm. Other muscular structures surrounding the kidney include the psoas muscle along its lower medial aspect, the quadratus lumborum laterally, along with the transverse abdominis aponeurosis. The lower poles of each kidney lies laterally and anteriorly compared to the upper pole, such that in the supine position, the upper pole is the more dependent pole. These relationships are particularly important when considering percutaneous access to stones in particular calyces.

76. A 72-year-old man with a 45 g benign prostate has frequency, urgency, and urge incontinence six months after TUMT. His AUA Symptom Score is 20 with a high degree of bother while taking an alpha-blocker. PVR is 175 cc. Pressure flow study shows detrusor overactivity with incontinence, a voiding pressure of 55 cm H2O, and a flow rate of 7 ml/sec. The best treatment is:
A. CIC.
B. 5-alpha-reductase inhibitor.
C. antimuscarinic and 5-alpha-reductase inhibitor.
D. repeat TUMT.
E. TURP.
ANSWER=E
In patients who have obstruction and detrusor overactivity relief of the obstruction will generally result in resolution of the detrusor overactivity. Although antimuscarinics may help the patient's symptoms, they do not treat the underlying problem. 5-alpha-reductase inhibitors reduce prostate volumes and modestly improve symptoms but may not treat the underlying obstruction and will take four to six months to achieve the maximal effect in this bothered patient. CIC will not treat the underlying problem of bladder outlet obstruction. TUMT is not as effective as TURP in improving the objective signs of outflow obstruction as evidenced by this man's persistent obstruction.

77. A 78-year-old man with dilated cardiomyopathy and obstructive pulmonary disease underwent percutaneous radiofrequency ablation of an enlarging 2.7 cm renal mass. Six months later, MRI scan demonstrates persistent contrast-enhancement within the periphery of the tumor. The next step is:
A. MRI scan in six months.
B. renal mass biopsy.
C. PET scan.
D. repeat percutaneous ablation.
E. partial nephrectomy.
ANSWER=D
Percutaneous radiofrequency ablation of small renal masses has been offered in recent years as a non-invasive method of treatment. Treatment efficacy is generally determined by followup CT or MRI scan evaluating for enhancement within the lesion. If enhancement is noted, this is considered suggestive of residual or recurrent tumor. In most series, between 5-20% of patients treated by radiofrequency ablation require re-treatment within the first year due to persistent enhancement. While long-term data is not available, those patients undergoing a second ablative procedure appear to have a similar outcome to those treated effectively in the first ablation. While partial nephrectomy could be considered in this patient, the frequency of persistent enhancement after the first ablation suggests that a second ablation is warranted prior to proceeding with more aggressive therapy. Biopsy is not indicated in this patient given the fact that the previous ablation may obscure histologic interpretation and that the biopsy outcome would not likely influence the desire to complete treatment. PET scan would not be informative in this case. As the enhancement likely represents residual tumor, it is not likely to abate with continued observation.

78. The zones of the adrenal cortex from capsule to medulla are:
A. reticularis, fasciculata, glomerulosa.
B. fasciculata, glomerulosa, reticularis.
C. glomerulosa, reticularis, fasciculata.
D. glomerulosa, fasciculata, reticularis.
E. reticularis, glomerulosa, fasciculata.
ANSWER=D
The three layers of the adrenal cortex from peripheral to central are the zona glomerulosa, zona fasciculata, and the zona reticularis. Central to the adrenal cortex is the adrenal medulla which is of neural crest origin and involved in the secretion of epinephrine and norepinephrine. The adrenal cortex is of mesodermal origin. The zona reticularis produces androgens, the zona fasciculata produces glucocorticoids and the zona glomerulosa produces mineralocorticoids, which regulate sodium reabsorption from multiple organs. All of these adrenal cortical functional end products are derived from a common precursor, cholesterol. Since the embryologic origins of the adrenal gland and the kidney are different, in cases of renal ectopia the adrenal gland maintains its respective orthotopic position.

79. A patient with non-ischemic priapism is to undergo duplex Doppler ultrasonography to confirm the diagnosis. The ultrasonographer should scan the:
A. ventral penile shaft.
B. dorsal penile shaft.
C. perineum.
D. perineum and ventral penile shaft.
E. perineum and dorsal penile shaft.
ANSWER=D
The diagnosis of non-ischemic priapism can be confirmed by using duplex Doppler ultrasonography. While the mechanism of injury may guide the clinician to the location of the arterio-corporal fistula, perineal or penile, the ultrasound should assess the penis and perineum. Ultrasonography of the penis to assess cavernosal artery morphology and dynamics is conducted on the ventral surface of the penis in a sagittal, para-urethral plane.

80. A 45-year-old man with metastatic clear cell carcinoma involving the lung, liver, lymph nodes, and bone undergoes a right radical nephrectomy. His preoperative labs include a hemoglobin of 9 gm/dl and a calcium of 11.5 mg/dl. The treatment most likely to prolong overall survival is:
A. temsirolimus.
B. interferon alpha.
C. bevacizumab.
D. sorafenib.
E. sunitinib.
ANSWER=A
Temsirolimus is a specific inhibitor of the mammalian target of rapamycin (mTOR) kinase - a component of intracellular signaling pathway involved in growth and proliferation of cells. Level I evidence in a recent study comparing temsirolimus, interferon alpha

or both RCC focused on poor risk candidates. The patients had at least three of the poor risk features: LDH > 1.5 times upper level, Hgb below normal, calcium > 10 mg/dl, time from diagnosis of cancer > 12 months, metastases in multiple organs, and/or Karnofsky score = 60 or 70. This patient has multiple features that puts him in a poorer risk group: multiple sites of metastasis, anemia and hypercalcemia. Intravenous weekly infusion of temsirolimus when compared to interferon prolongs overall survival, the first agent that has demonstrated an overall survival advantage. Sunitinib and sorafenib have been shown to improve progression free survival, but not overall survival and not in this particular patient with multiple poor risk features.

81. The blood supply to the appendix that must be preserved during an appendicovesicostomy arises from a branch of which artery:
A. ileal.
B. anterior cecal.
C. posterior cecal.
D. ascending colic.
E. inferior mesenteric.
ANSWER=A
The superior mesenteric artery (SMA) provides blood supply to the terminal ileum (distal six inches), appendix, ascending colon and transverse colon through the ileocecal (ileum, appendix and cecum), right (ascending colon), and middle (transverse colon) colic arteries. A separate mesentery exists from the ileocecal artery to the appendix allowing for the appendix to be separated from the cecum but maintain its blood supply for implantation into the bladder or another bowel segment. The mesentery of the appendix can be "windowed" for imbrication of the cecum around the appendix as is accomplished with the antegrade continence enema (ACE) procedure. The marginal artery of Drummond completes an anastomosing arcade between the middle colic artery of the SMA and the left colic artery of the inferior mesenteric artery, allowing for separation and mobilization of various segments of the large bowel for reconstructive purposes. The right colic artery most often arises directly from the SMA which can limit the mobilization of the cecum and right colon into the pelvis, at times requiring division of the right colic artery. When the right colic artery arises as a branch of the ileocecal artery mobilization of the cecum and right colon is considerably easier..

82. A 28-year-old white male who is sexually active has recurrent episodes of priapism requiring visits to the emergency department. The best treatment is:
A. terbutaline.
B. LH-RH agonist.
C. digoxin.
D. baclofen.
E. home intracavernosal phenyephrine.
ANSWER=E
In men with recurrent bouts of priapism and concerned about their sexual function, the use of an LH-RH agonist is problematic. In this situation, training the patient to use intracavernosally delivered phenylephrine is advisable. For a man of any age who is not concerned about sexual function, the use of an LH-RH agonist has been shown to be of benefit. The literature supporting the use of oral terbutaline, digoxin, or baclofen is anecdotal.

83. A 63-year-old man has left flank pain, persistent gross hematuria, and a palpable left abdominal mass. He has lost 30 lbs in the last six months. CT scan reveals a 12 cm heterogenous left renal mass that involves the posterior abdominal wall and left mesocolon. Serum hematocrit is 24%. A bone scan reveals a sacral metastasis. The next step is:
A. oral sunitinib.
B. systemic interleukin-2.
C palliative nephrectomy.
D. diverting colostomy and oral sunitinib.
E. left renal angioinfarction.
ANSWER=E
This patient has a symptomatic renal mass and a very poor prognosis. His poor performance status and a bone metastasis make it very unlikely that he will respond to therapy with biological modifiers. Percutaneous embolization of the mass should control the hematuria and also palliate his flank pain. Neither systemic IL-2 nor oral sunitinib will control the patient's intractable hematuria, which must be addressed as a first step in palliation. A diverting colostomy is not indicated unless obstruction develops and a palliative nephrectomy is likely to be excessively morbid in this patient with such a poor prognosis. Cytoreductive nephrectomy is not indicated before immunotherapy for patients with poor performance status and visceral metastases.

84. During staging pelvic lymphadenectomy for prostatic carcinoma, a delicate nerve, anterior and lateral to the right external iliac artery and lying along the anterior surface of the psoas muscle, is inadvertently severed. The expected ipsilateral neurological deficit is:
A. inability to adduct the thigh.
B. inability to abduct the thigh.
C. inability to flex the thigh.
D. anesthesia of the lateral thigh.
E. anesthesia of the anterior thigh and lateral scrotum.
ANSWER=E
The genitofemoral nerve lies on the anterior aspect of the psoas muscle and is often used as the landmark for the lateral margin of the dissection for a pelvic lymphadenectomy. The genitofemoral nerve supplies sensation to the anterolateral scrotum and the anterior thigh and has no motor innervative functions. The femoral nerve lies deep in the psoas muscle and is, therefore, less often injured during a pelvic lymphadenectomy. It has both sensory and motor functions, supplying sensation to the medial and anterior thigh and motor innervation to the quadriceps muscle which facilitates hip flexion. Injury to the obturator nerve, which lies posterior to the iliac artery, results in the inability to adduct the thigh. The obturator nerve, however, is easier seen and palpable due to its size, compared to the genitofemoral nerve.

85. The etiology of PDE5 inhibitor-associated color vision disturbances (chromatopsia) is:
A. PDE6 cross reactivity.
B. optic nerve ischemia.
C. optic nerve vasocongestion.
D. sphincter pupillae paralysis.
E. retinal venous congestion.
ANSWER=A
Chromatopsia is the loss of color vision (blue halo effect) and is related to cross reactivity with PDE6. Non-arteritic ischemic optic neuropathy (NAION) is associated with PDE5 inhibitor use, but there is no robust evidence supporting causality. This condition is related to ischemia of the optic nerve. PDE5 inhibitors are associated with no alterations in visual acuity or electroretinography.

86. The VHL tumor suppressor gene regulates the expression of:
A. basic fibroblastic growth factor.
B. epidermal growth factor receptor.
C. c-Met proto-oncogene.
D. vascular endothelial growth factor (VEGF).
E. transforming growth factor beta.
ANSWER=D
The wild type VHL tumor suppressor gene product suppresses the expression of vascular endothelial growth factor (VEGF), a potent stimulator of angiogenesis, through downregulation of hypoxia-inducible factor 1 (HIF1). Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF, which contributes to the neovascularity associated with RCC. This pathway is of critical importance to practicing urologists as most recently developed tyrosine kinase inhibitors target the pathway directly or indirectly.

87. Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:
A. recurrent UTIs.
B. diurnal enuresis beyond age six years.
C. infrequent voiding.
D. age under nine months.
E. encopresis.
ANSWER=D
Genitourinary manifestations of sexual abuse in children are many and straddle injuries often can be confused with abuse. A straddle injury under nine months of age is a "red flag" of abuse in that children of that age are not ambulatory. The possibility of sexual

abuse should be considered as a result of associated symptoms including rectal, vaginal or penile pain (in boys), discharge or bleeding or chronic dysuria, enuresis, constipation or encopresis. Dysfunctional elimination syndromes may also be associated with sexual abuse and should raise a concern in certain settings. Recurrent UTIs, diurnal enuresis beyond six years of age, and infrequent voiding are very common in the absence of sexual abuse.

88. A 32-year-old single man with decreased libido and erectile dysfunction has a serum testosterone of 100 ng/dl (normal 300-1000 ng/dl) and a prolactin of 150 ng/ml (normal 0-15 ng/ml). He has no visual field abnormalities, but an MRI scan demonstrates a 1 cm pituitary tumor. After three months of bromocriptine, his testosterone is 120 ng/dl, and he is still impotent despite normalization of his prolactin and a slight reduction in the size of the tumor. The most appropriate treatment is:
A. increase bromocriptine.
B. testosterone supplementation.
C. transsphenoidal pituitary surgery.
D. pituitary radiation.
E. hCG.
ANSWER=B
Many men with pituitary macroadenomas require testosterone replacement in addition to bromocriptine. The prolactin secreting tumor lowers LH secretion, probably by destruction of the pituitary cells that make LH. Higher doses of bromocriptine are not indicated if the prolactin is normal. Transsphenoidal surgery or pituitary radiation are not indicated if bromocriptine controls the tumor. Human chorionic gonadotropin would be an appropriate option if the patient was interested in fertility. However, in a single man whose chief complaint is impotence, testosterone replacement is easier to administer and less costly.

89. The most likely site of lymph node metastasis for a right-sided RCC is:
A. precaval.
B. hilar.
C. para-aortic.
D. retrocrural.
E. interaortocaval.
ANSWER=E
The most likely site of lymph node metastasis in an individual with a right-sided renal tumor is the interaortocaval lymph nodes. In men undergoing extensive RPLND at the time of surgery for renal cancer, 46% of men with lymph node metastases were found to have disease in this location compared to 27% in the hilar and 23% in the precaval location, respectively. Contralateral lymph node metastases are rare. As such, hilar lymph node dissection alone carries a poor sensitivity and negative predictive value. At the time of surgery for a right-sided renal tumor, if lymphadenectomy is to be undertaken, it should include the hilar, precaval, and interaortocaval lymph node chains. It should be noted that retrocrural lymph nodes are typically involved only in cases where there is already retroperitoneal lymph node disease.

90. At the time of a newborn circumcision, the distal one-half of the glans penis is amputated, including the urethra. The prepuce and glans have been kept in iced saline for four hours. The best management is:
A. primary anastomosis.
B. graft of preputial skin for coverage.
C. discard glans tip and allow secondary healing.
D. discard the glans tip and re-configure remaining glans.
E. primary anastomosis with microvascular reconstruction.
ANSWER=A
The length of time from injury and having had the tissue maintained in cold saline should permit adequate healing of the re-anastomosed tip. The urethra should be stented. The are no vessels of sufficient size to permit microvascular re-anastomosis. When the repair is performed within eight hours after the injury, the penis usually heals nicely. A graft of preputial skin for coverage would result in a poor cosmetic appearance. Similarly, reconfiguration of the remaining glans will not result in an ideal cosmetic effect.

91. A 28-year-old woman has headaches and blurred vision. Physical exam reveals bipedal edema and an S3 gallop. Her BP is 190/80 mm Hg. Urinalysis shows 10-20 RBC/hpf. Serum creatinine is 1.2 mg/dl. Abdominal exam reveals a right flank mass. The most likely diagnosis is:
A. polycystic kidney.
B. adrenal hemorrhage.
C. renal artery aneurysm.
D. renal arteriovenous fistula.
E. renal artery dissection.
ANSWER=D
The presentation of a young woman with hypertension and wide pulse pressure, microscopic hematuria, flank mass, and congestive heart failure should immediately raise the suspicion of an arteriovenous fistula. While the other answers could explain hypertension, the key in this patient is congestive heart failure which in young individuals would be associated with a significant arteriovenous fistula and a renal mass.

92. A 37-year-old woman has low-grade fever and urinary incontinence four weeks after a robotic hysterectomy. A CT scan reveals urinary extravasation into the open vaginal cuff in the left pelvis. There is mild left ureterectasis, and a hematoma surrounds the distal left ureter that is not clearly visualized. Cystoscopy is negative and a stent could not be placed in the left ureter. In addition to I.V. antibiotics, the next step is:
A. CT-guided pelvic drain placement.
B. left percutaneous nephrostomy tube and antegrade stent placement.
C laparoscopic exploration and repair.
D. open exploration with ureteroneocystostomy.
E. open exploration with primary ureteral repair.
ANSWER=B
The most common etiology of ureterovaginal fistula is surgical injury to the distal ureter, generally occurring during gynecologic procedures, most often during hysterectomy. Risk factors include endometriosis, obesity, pelvic inflammatory disease, radiation therapy and pelvic malignant disease. The most common presenting symptom is the onset of constant urinary incontinence one to four weeks after surgery. This is often preceded by several days of flank or abdominal pain, nausea, and low-grade fever, presumably because of urinoma or ureteral obstruction. The goal of therapy is expeditious resolution of urine leakage, prevention of urosepsis and preservation of renal function. Prompt drainage of the affected upper urinary tract is essential. An attempt at ureteral stenting or percutaneous nephrostomy tube decompression is warranted as soon as possible. If ureteral stenting is unsuccessful, surgical repair is indicated. The site of injury and the surrounding fibrosis and inflammation usually preclude primary repair of the fistula necessitating ureteroneocystostomy.

93. A 53-year-old T-5 paraplegic woman undergoes intra-detrusor botulinum toxin injections for intractable incontinence between catheterizations. She should be told that:
A. botulinum toxin type B is most frequently used.
B. a repeat injection will likely be needed within three months.
C a total dose of 200 units has been shown to have proven efficacy.
D. a dose of 100 units per injection site will be used.
E. general anesthesia is required for the procedure.
ANSWER=C
Intra-detrusor injections of botulinum toxin type A have been effectively utilized to treat neurogenic overactive bladder. However, this is not an FDA-approved indication. A total dose of 200-300 units has been shown to have efficacy for this condition, with typically 10 units injected per site. This is an office procedure, with intravesical lidocaine administered prior to injection. In the majority of studies, botulinum toxin A injections last six to nine months. The most common side effects of botulinum toxin A include impaired bladder emptying, hematuria, and UTI.

94. A 42-year-old woman has a blood pressure of 180/115 mm Hg. Serum chemistries include: BUN 14 mg/dl, creatinine 0.9 mg/dl, Na 140 mEq/l, C 0 2 28 mEq/l, K 3.1 mEq/l, CI 100 mEq/l, calcium 10.4 mg/dl, and phosphorus 3.4 mg/dl. The plasma renin is 0.5 mg/ml/hr (normal: 1.0-8.0). The most likely diagnosis is:
A. pheochromocytoma.
B. renal tubular acidosis.
C. renal artery stenosis.
D. Page kidney.
E. primary hyperaldosteronism.

ANSWER=E
The findings of hypertension, hypokalemia, and suppressed plasma renin activity are consistent with primary hyperaldosteronism. With renal artery stenosis or a Page kidney, the plasma renin level should be elevated. The serum CO2 of 28mEq/l mitigates against RTA. There are no data to support a diagnosis of pheochromocytoma in this patient.

95. The most likely underlying etiology for an ileo-vesical fistula in a 35-year-old man with pneumaturia is:
A. Crohn's disease.
B. diverticulitis.
C. trauma.
D. appendiceal abscess.
E. malignancy.
ANSWER=A
Pneumaturia is the most common presenting symptom for a vesico-enteric fistula. Overall, the most common cause of vesico-enteric fistula is diverticulitis followed by cancer and Crohn's disease. Colo-vesical fistulas are usually due to diverticulitis.However, underlying gastrointestinal disease influences the likelihood and type of fistula. Ileovesical fistulas are more commonly due to Crohn's disease than cancer.

96. A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later, a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:
A. renal vein thrombosis.
B. fungal urinary infection.
C. umbilical artery perforation.
D. renal papillary necrosis.
E. renal cortical necrosis.
ANSWER=B
The clinical history is consistent with an infection. Indwelling intravascular catheters and concomitant broad spectrum antibiotics increase the likelihood of candidal infection, particularly in premature low birth weight infants. If hydronephrosis and fungus balls are present in the renal collecting system, percutaneous drainage and irrigation with AmphotericinB may be needed. At times, fluconazole may be effective. Renal papillary necrosis and cortical necrosis may be a late stage of severe infection and in this case would be made by the pathologist after treatment failure.

97. The renal arterial disease associated with stable renal function to the affected kidney is:
A. atherosclerosis.
B. intimal hyperplasia.
C. fibromuscular hyperplasia.
D. medial fibroplasia.
E. perimedial fibroplasia.
ANSWER=D
Medial fibroplasia is the most common form of fibromuscular renal artery disease. It typically occurs in women between 30-50 years of age. It is associated predominately with hypertension and is rarely a cause of progressive renal ischemic atrophy. All other diseases listed are associated with progressive disease that can culminate in renal loss.

98. Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. The next step is:
A. nasogastric suction and parenteral hyperalimentation.
B. endoscopic intubation of the pancreatic duct.
C. continued observation.
D. distal pancreatectomy.
E. medium chain triglyceride diet.
ANSWER=A
In this case the clinical findings are most consistent with a pancreatic fistula resulting from unrecognized intraoperative injury to the tail of the pancreas. These fistulas usually close with conservative management (bowel rest and hyperalimentation). Endoscopic intubation of the pancreatic duct likely will not be helpful as this structure is not obstructed. Distal pancreatectomy would be considered a last resort only after less invasive interventions have failed. Medium chain triglycerides are used in the management of chylous ascites.

99. A ten-day-old infant boy is hospitalized for failure to thrive. After his umbilical stump fell off, fluid has intermittently drained from the umbilicus. The umbilical fluid has a creatinine of 10 mg/dl and grows >105 cfu/ml of E. coli. The next step should be antibiotics and:
A. observation.
B. cannulation and injection of contrast.
C. VCUG.
D. closure of fistula.
E. urethral catheter drainage.
ANSWER=C
The differential diagnosis of a wet umbilicus in the infant includes patent urachus, omphalitis, simple granulation of the healing stump, patent vitelline or omphalomesenteric duct, infected umbilical vessel, and external urachal sinus. The finding of a urinary creatinine level in the fluid draining from the umbilical stump suggests a patent urachus. While probing the urachal tract may aid in diagnosis, a VCUG should confirm the diagnosis and fully evaluate the lesion and any associated bladder outlet obstruction.

100. An 80-year-old man experiences day and night urinary incontinence despite timed voiding every two hours and nightly fluid restriction. Urinalysis is normal, and PVR is 250 ml. Pressure-flow urodynamics reveal detrusor overactivity with impaired contractility. Maximum detrusor pressure is 10 cm H20. The best treatment is:
A. bethanechol and daytime fluid restriction.
B. bethanechol and alpha-blocker.
C. antimuscarinic and alpha-blocker.
D. antimuscarinic and TURP.
E. antimuscarinic and CIC.
ANSWER=E
Detrusor overactivity with impaired contractility is the most common form of detrusor dysfunction in the elderly. The typical presentation is urinary urge incontinence and an increased PVR. Pressure-flow urodynamics typically reveal involuntary detrusor contractions, low detrusor pressure, and decreased maximum urinary flow. This syndrome can often be confused with bladder outlet obstruction or overflow incontinence. Although behavioral methods such as straining, performing the Crede maneuver, and double voiding can be initiated, bladder emptying is generally ineffective. Bethanechol has not been effective in augmenting detrusor contractility. Suppression of involuntary bladder contractions with an antimuscarinics will generally result in an increase in the PVR despite efforts to reduce outlet resistance. The addition of CIC to antimuscarinics results in effective bladder emptying and eradication of the incontinence.

101. A 27-year-old man has a right testicular mass. Radical orchiectomy is performed and histology shows pure seminoma. CT scan is normal but serum beta-hCG remains 60 lU/ml (normal < 7 lU/ml) six weeks later. The next step is:
A. radiation to retroperitoneal nodes.
B. radiation to retroperitoneal and mediastinal nodes.
C. RPLND.
D. platinum-based chemotherapy.
E. check serum LH levels.
ANSWER=A
This patient most likely has persistent seminoma in the retroperitoneum. Patients who harbor non-seminomatous elements that could have been "burnt-out" in the primary tumor usually have beta-hCG levels higher than 200 ng/ml. Most authorities recommend treating seminoma with radiation to the retroperitoneal lymph nodes only, thus avoiding the potential toxicity of mediastinal disease which, if it develops later, may be salvaged with chemotherapy. Primary RPLND is not recommended for seminoma. Patients with markedly elevated serum LH levels may have a false elevation of beta-hCG but it is usually not to the magnitude described here.

102. A nine-month-old girl is brought to the operating room for repair of a right UPJ obstruction. Renal ultrasound shows moderately severe hydronephrosis with a large extrarenal pelvis

and no thinning of the parenchyma. During the UPJ repair, the ureter is found to be narrow for 2.5 cm immediately below the UPJ. A tension-free dismembered pyeloplasty is not possible after renal mobilization. The next step is:
A. cutaneous pyelostomy.
B. spiral flap pyeloplasty.
C. ureterocalycostomy.
D. appendix interposition.
E. Monti ileal ureter interposition.
ANSWER=B
When a long segment of strictured proximal ureter is encountered at the time of a planned repair for UPJ obstruction, a tension free anastomosis may not be possible with a standard dismembered pyeloplasty. When adequate renal pelvic tissue is present, the next best option is a spiral flap procedure, especially when the UPJ is already in a dependent position. The other options are viable alternatives but should only be considered when renal pelvis tissue is not available for use since they are more technically challenging and/or have a higher associated complication rate.

103. A 28-year-old man with an ileal conduit for 20 years is scheduled for a renal transplant. He had a PUV treated as an infant. A CMG shows a 75 ml capacity bladder with detrusor overactivity, and his maximum voiding pressure is 50 cm H2O. After five days of bladder cycling, his bladder capacity increases to 200 ml. The best management is:
A. transplant into the existing ileal conduit.
B. bladder augmentation before transplant.
C. transplant into native bladder.
D. neobladder construction before transplant.
E. Indiana pouch construction before transplant.
ANSWER=C
Transplantation into a pre-existing urinary diversion is necessary when the bladder is absent, the recipient is totally incontinent and cannot undergo repair or irreparable bladder damage has occurred. Selected patients may undergo successful undiversion at transplantation even after many years of urinary diversion. They should undergo urodynamics, VCUG, and cystoscopy. In the absence of significant fibrosis, long-term defunctionalized bladders should improve with restoration of urine flow. This may be assessed after three to five days of bladder cycling by suprapubic tube or CIC. Bladder cycling must result in a bladder capacity > 100 ml and urodynamics must demonstrate a voiding pressure < 100 cm water before transplanting into the native bladder.

104. A 63-year-old man, previously treated with pelvic radiation for colon cancer, develops localized Gleason 4+3=7 adenocarcinoma of the prostate. He undergoes radical prostatectomy that is complicated by a 3 cm rectourethral fistula four weeks after surgery. The best management is:
A. bowel rest and urethral catheter drainage.
B. fecal diversion and bilateral percutaneous nephrostomies.
C. transrectal fistula repair.
D. transabdominal fistula repair.
E. staged fecal diversion and fistula repair.
ANSWER=E
The incidence of rectourethral fistula after radical retropubic prostatectomy is 1-2%. The risk of a fistula increases with a prior history of pelvic radiation therapy, rectal surgery, or TURP. Fistulas generally occur at the vesicourethral anastomosis and are often due to unrecognized rectal injury at the time of surgery. Although single and staged repairs have been described, staged repairs are recommended in cases of large fistulas and those associated with radiation therapy, uncontrolled local or systemic infection, immunocompromised states, or inadequate bowel preparation at the time of definitive repair. Conservative treatment with urethral catheterization is unlikely to be successful for large fistulas in the setting of prior radiation.

105. A 55-year-old man has mild right flank pain eight weeks after an aorto-iliac vascular graft. Serum creatinine is 1.4 mg/dl, WBC 12,000/cu mm, and urine culture is sterile. Renal ultrasound shows moderate right hydronephrosis, and CT scan demonstrates the graft is posterior to the right ureter. The best treatment is:
A. percutaneous nephrostomy.
B. oral steroid therapy.
C. transureteroureterostomy.
D. nephrectomy.
E. ureterolysis.
ANSWER=B
Hydronephrosis occurs in 5% of ureters at risk following reconstructive vascular surgery. The cause of ureteral obstruction is anterior graft placement (30%) and localized retroperitoneal fibrosis (70%). Grafts should be placed posterior to the ureter, as in this case. Early ureteral obstruction due to secondary retroperitoneal fibrosis occurring within six months of surgery can resolve with a four-week course of oral steroid therapy. Percutaneous nephrostomy is not indicated with only mild flank pain and a normal serum creatinine. Transureteroureterostomy should be reserved for major loss of ureteral length and nephrectomy is not indicated. Ureterolysis would be reserved for failure of more conservative measures.

106. Combined renal and liver transplantation is curative for:
A. amyloidosis.
B. primary hyperoxaluria.
C. Alport syndrome.
D. cystinosis.
E. Fabry's disease.
ANSWER=B
When performing renal transplantation, recurrence of the underlying renal disease which resulted in ESRD is of significant concern. Renal amyloidosis, cystinosis, and Fabry's disease are all potentially treatable with renal transplantation despite significant recurrence. Alport syndrome is not associated with recurrence after transplantation, but does not require a liver transplant. Simultaneous renal and liver transplantation will be curative in patients with ESRD secondary to primary hyperoxaluria since the defect in oxalate metabolism occurs in the liver.

107. A 25-year-old man undergoes left scrotal exploration and subsequent orchiectomy. Pathologic and staging evaluation reveal a NSGCT clinical stage MB. After full-dose platinum-based chemotherapy, he has a residual 3 cm para-aortic mass. The next step in treatment should be RPLND and:
A. wide excision of the scrotal scar.
B. wide excision of the scrotal scar and spermatic cord remnant.
C. removal of the spermatic cord remnant.
D. left hemiscrotectomy and removal of spermatic cord remnant.
E. left hemiscrotectomy, removal of the spermatic cord remnant and ipsilateral
ilioinguinal node dissection.
ANSWER=C
In patients with low-stage NSGCT, the scrotal scar should be widely excised with the spermatic cord remnant at the time of RPLND. This patient, however, has more high volume disease. Patients treated with full-dose platinum-based regimens should have the cord stump removed at the time of RPLND; however, given the relative absence of local relapse after systemic treatment, extensive groin dissection or hemiscrotectomy is not required..

108. A 14-year-old boy with C-4 quadriplegia secondary to a MVC six years ago has severe neurogenic bladder dysfunction, high-grade VUR, and marked hydroureteronephrosis. He requests urinary diversion because of inability to catheterize. The best choice of diversion is:
A. bilateral loop ureterostomy.
B. Kock pouch.
C. non-refluxing colon conduit.
D. ileovesicostomy.
E. ureterosigmoidostomy.
ANSWER=D
In this case, any continent diversion (including a Kock pouch) is contraindicated due to difficulty catheterizing. A ureterosigmoidostomy requires fecal continence. A non-refluxing colon conduit would be at high risk for complications due to the dilated ureters and loop ureterostomies require two appliances. A continuously draining ileovesicostomy is a low risk procedure that will allow free urinary drainage and easy application. The complications of the procedure include urethral incontinence, stomal stenosis and bladder and renal calculi.

109. A 20-year-old woman with ESRD of unknown etiology is being considered for renal transplantation. A 24-hour urine

reveals a creatinine clearance of 18 ml/min and 600 mg protein. An ultrasound reveals small kidneys with mild bilateral caliectasis. Prior to transplantation, she should undergo:
A. repeat creatinine clearance.
B. VCUG.
C. renal scan.
D. retrograde pyelography.
E. bilateral nephrectomy.
ANSWER=B
Despite a negative clinical history for UTI, VUR as a cause of ESRD must be ruled out in a woman of childbearing age. If significant (Grade III or higher) VUR exists, strong consideration should be given to native nephrectomy to avoid chronic infection post-transplant. If native nephrectomy is necessary, the surgery should be postponed until the patient is dialysisdependent. There is no need to repeat the 24-hour urine collection since the creatinine clearance is < 20 ml/min, which is an accepted criteria for transplantation. There is no indication for preemptive bilateral native nephrectomy, retrograde pyelography, or renal scan in this setting.

110. When assessing bone mineral density (BMD) with a DEXA (dual energy x-ray absorptiometry) scan in a 65-year-old man with prostate cancer treated on leuprolide, a T score defines the number of standard deviations from the mean BMD score of:
A. age-matched peers.
B. age-matched peers with prostate cancer without prior androgen deprivation.
C. men between the ages of 20 and 35 years.
D. men between the ages of 45 and 55 years.
E. men between the ages of 60 and 70 years.
ANSWER=C
The possible deleterious effect of androgen deprivation therapy on bone health is becoming increasingly recognized. A DEXA nuclear medicine study is often the diagnostic study of choice to measure bone mineral density (BMD). The BMD is expressed as a T score, which defines the number of standard deviations away from a mean BMD score derived from normal individuals of the same sex between 20 and 35 years of age, when bone mass is generally at its peak. The lower the T score, the lower the BMD and the greater the risk for fracture. The BMD measures the relative and not the absolute future risk. Each standard deviation reduction in BMD core correlates to a 10% to 15% reduction in BMD, and an approximate doubling of fracture risk. The Z score compares one's BMD to age-matched peers.

111. During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:
A. upper tract bacteriuria.
B. transmission of pressure to the kidney.
C. intestinal mucous in kidney.
D. upper tract urine storage.
E. yo-yo effect and ureteral dilation.
ANSWER=A
After continent reconstruction with an intestinal segment, there is a high incidence of bacteriuria especially if CIC is required to empty the reservoir. An antirefluxing connection of the upper urinary tract protects the kidneys from ascending infection. Intra-reservoir pressure is transmitted to the upper urinary tract even in the absence of reflux. Successful continent reconstruction is predicated on an adequate low pressure reservoir.

112. A 23-year-old woman suffers a complex pelvic fracture in a MVC. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted, and she is hemodynamically stable. Treatment should be:
A. urethral catheter drainage.
B. percutaneous suprapubic cystostomy.
C. open bladder repair.
D. suprapubic cystostomy and perivesical drainage.
E. repair of vaginal and bladder lacerations.
ANSWER=E
Urethral and bladder neck injuries in women are rare but potentially devastating in their effects on long-term continence and bladder function. The urethra is short, mobile, and protected by the pubis in women. Female urethral and bladder neck injuries occur in 4.6% to 6% of women suffering pelvic fractures. The typical presentation includes gross hematuria or blood at the introitus. Despite blood in the vaginal vault, over 40% of female bladder neck and urethral injuries are missed in the emergency department and only half will be detected on CT cystogram. As a result, one must have a high index of suspicion and low threshold for performing a vaginal examination in females with pelvic fractures. Female bladder neck injuries should undergo immediate repair with primary closure of any vaginal lacerations to prevent fistula formation. Longitudinal tears of the female bladder neck have been associated with higher rates of incontinence. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. In one recent series, despite operative repair, 16% of women developed vesicovaginal fistulas, 43% had moderate or severe lower urinary tract systems, and 38% had sexual dysfunction.

113. A 56-year-old man has a 2 cm solid mass in the upper pole of his right epididymis revealed on a scrotal ultrasound. The next step is:
A. observation.
B. needle biopsy.
C. mass excision.
D. epididymectomy.
E. inguinal orchiectomy.
ANSWER=C
Small rounded masses of the epididymis (0.5-3 cm) are generally adenomatoid tumors. These tumors can be located throughout the epididymis and are generally asymptomatic. They are typically benign tumors, and there are no reported cases of metastasis. The recommended treatment is surgical excision.

114. As a part of normal renal function, most of the filtered solutes and water are returned to the systemic circulation by:
A. proximal tubular reabsorption.
B. proximal tubular secretion.
C. distal tubular secretion.
D. the countercurrent mechanism.
E. distal tubular reabsorption.
ANSWER=A
The normal GFR averages 130-180 l/day, a volume sixty times that of plasma volume. Therefore, most filtered solutes and water must be returned to the circulation. Tubular reabsorption accomplishes this phenomenon - mainly in the proximal tubule and then the loop of Henle. Proximal tubular secretion would remove solutes from the circulation as would distal tubular secretion. The countercurrent mechanism is a net exchange.

115. A 43-year-old man has sudden onset of fever (103° F), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:
A. urethra.
B. catheterized urine.
C. expressed prostatic fluid.
D. voided urine after prostatic massage.
E. mid-stream urine.
ANSWER=E
This patient has acute prostatitis. Prostatic massage is to be avoided in patients with acute prostatitis as this may cause bacteremia. Consequently, c and d are not only unnecessary for diagnosis but might well be harmful. The diagnosis can be made from culture of the urine, as the organism causing the prostatitis is almost always present in the bladder urine during acute prostatitis. Cultures from the urethra are of no particular value in this case. Instrumentation of the lower urinary tract should be avoided in acute prostatitis; furthermore, it is seldom necessary to catheterize a male just to obtain a urine culture.

116. A 68-year-old man has a 4 cm scrotal mass. Ultrasound shows a normal testis with a heterogeneous paratesticular tumor. During inguinal exploration a solid mass is encountered attached to the spermatic cord, separate from the testis and scrotum. Frozen section biopsy shows a spindle cell tumor. The next step is:
A. excision of the mass.

B. radical orchiectomy.
C. radical orchiectomy and hemi-scrotectomy.
D. radical orchiectomy and inguinal node dissection.
E. radical orchiectomy and scrotal irradiation.
ANSWER=B
This patient has a paratesticular sarcoma. Local treatment is radical orchiectomy via the inguinal approach. If there is evidence of involvement of the scrotal wall, hemi-scrotectomy would be appropriate. The inguinal nodes are not at particularly high risk of disease, though a RPLND is indicated in some types of sarcoma.

117. A 65-year-old man has chronic urinary retention and pedal edema. His BUN is 75 mg/dl. He is catheterized and a brisk diuresis of 500 ml/hr ensues. Forty-eight hours later, the BUN is normal and the ankle edema is gone, but the diuresis persists. The probable cause of the persistent diuresis is:
A. overload of fluid prior to relief of the obstruction.
B. increased urea content in the urine.
C. failure to decompress the bladder slowly.
D. abnormal ADH secretion.
E. decreased tubular sodium reabsorption.
ANSWER=E
Although early diuresis after relief of obstruction may be due to solute and water overload, in this instance the diuresis persists. This sodium-losing nephropathy is due to impaired tubular reabsorption of sodium. Failure to decompress the bladder slowly will not result in diuresis. Increased urea content in the urine will not result in diuresis and not likely present in this patient as his BUN has returned to normal. Overload of fluids prior to relief of obstruction will result in diuresis but with a normal BUN and ankle edema gone, this would not last 48 hours.

118. The most effective treatment of balanitis xerotica obliterans affecting the prepuce, glans penis, and the meatus is:
A. topical corticosteroids.
B. 5-fluorouracil cream.
C. circumcision.
D. meatal dilation.
E. meatoplasty.
ANSWER=C
Balanitis xerotica obliterans (Lichen sclerosis et atrophicus) is an inflammatory condition of the glans and prepuce of unknown cause. It frequently produces significant phimosis and may produce complete obliteration of a glans penis. The etiology remains controversial, as is the treatment. In a study of 287 patients, Depasquale, et al demonstrated 92% of patients undergoing circumcision alone had symptom relief and arrest of the progress of the disease. 3.9% of patients had development of glans ulceration requiring glans resurfacing and 4% had meatal stenosis significant enough to require meatotomy or meatoplasty.

119. A 78-year-old man had a radical cystectomy and ileal conduit for recurrent bladder cancer following radiation therapy. Pathology showed stage pT3bN0M0 cancer. CT scan at one year was normal, but at two years there was marked right hydroureteronephrosis with very thin residual renal parenchyma. Loopogram shows a tight narrowing of the right distal ureter 2 cm above the ureteroileal junction. He is asymptomatic and serum creatinine is 1.6 mg/dl. The next step is:
A. observation.
B. retrograde balloon dilation of the ureter.
C. percutaneous laser incision of the stricture.
D. open reimplantation of the ureter into the ileum.
E. right nephroureterectomy.
ANSWER=E
This is an unusual site for a benign ureteroileal stricture, and there is a high likelihood that this is the result of tumor recurrence in the ureter. Endoscopic management is unlikely to work, and does not establish the etiology of the obstruction. Since the kidney has little remaining parenchyma, the best treatment is nephroureterectomy.

120. A 60-year-old man has a prolonged ileus for three weeks after radical nephrectomy complicated by a wound infection. Hydration is maintained by intravenous fluids. Serum sodium, potassium, bicarbonate, chloride, and creatinine are normal. He develops neuromuscular irritability, tetany, and behavioral disturbances. The cause of these symptoms is most likely:
A. hypoglycemia.
B. hypomagnesemia.
C. hypoproteinemia.
D. hypocalcemia.
E. hypercalcemia.
ANSWER=B
Prolonged parenteral fluid and electrolyte therapy which doesn't include magnesium can result in significant depletion of this electrolyte. The symptoms of hypomagnesemia include neuromuscular irritability and disturbed cerebration. Any patient maintained solely on prolonged intravenous fluids should have serum magnesium levels determined, particularly if he fails to improve. Electrolyte replacement should include appropriate amounts of magnesium. Calcium abnormalities will result in neuromuscular disturbances but not likely with the behavioral manifestations.

121. A 32-year old man complains of perineal pain, ejaculatory pain, and urinary frequency for the last eight months. Urine cultures have been negative and cystoscopy was also negative. A three-week course of Bactrim did not resolve his symptoms. Expressed prostatic secretion now shows 15 WBC/hpf compared to 5 WBC/hpf prior to antibiotic treatment. This expressed prostatic secretion finding:
A. indicates he will need treatment with ciprofloxacin.
B. is not relevant to the severity of his symptoms.
C. predicts he will respond to alpha-blockers.
D. is consistent with a prostatic abscess.
E. corresponds with a diagnosis of autoimmunity.
ANSWER=B
This patient has chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS). This condition has been studied extensively by the NIH-funded Chronic Prostatitis Clinical Research Network (CPCRN). The CPCRN has found that WBC on expressed prostatic secretion do not correlate with severity of CP/CPPS symptoms. Furthermore, ciprofloxacin and alpha-blockers are not effective. If prostatic abscess is suspected, an expressed prostatic secretion should not be performed. However, the clinical presentation does not suggest an abscess. While autoimmunity in CP/CPPS has been suggested, there is no data to correlate a diagnosis of autoimmunity with the finding of WBC on expressed prostatic secretion.

122. A 59-year-old man with a solitary kidney and normal renal function has a left renal pelvic filling defect on CT urogram. Ureteroscopy reveals a 3.5 cm solid appearing mass involving the renal pelvis and extending into the lower pole infundibulum. Biopsy and renal pelvic washing reveal high grade urothelial carcinoma. Bladder biopsies and metastatic evaluation are negative. The next step is:
A. ureteroscopic laser ablation of tumor.
B. percutaneous tumor resection.
C. partial nephrectomy.
D. nephroureterectomy and dialysis.
E. nephroureterectomy, cystectomy with ileal conduit and dialysis.
ANSWER=D
This patient has a high-grade tumor in the renal pelvis. Although one would like to avoid making him anephric, the chance of tumor control with conservative measures is poor because of the size and grade of the tumor. Partial nephrectomy would be technically difficult and would result in a high likelihood of tumor recurrence given the multifocal nature of the disease. Systemic chemotherapy and endoscopic treatment must be considered second choices if he refuses nephrectomy. Although his bladder remains at risk for TCC recurrence, cystectomy is not indicated at this time and may be used during renal transplantation if he remains disease free for two years

123. A 17-year-old boy with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine collection contains 6.8 g protein. Other likely associated findings include:
A. hypoproteinemia, hypocholesterolemia.
B. hypercholesterolemia, increased total body sodium.
C. hypovolemia, reduced total body sodium.
D. hyponatremia, hyperkalemia.
E. hypovolemia, metabolic acidosis.

ANSWER=B
This patient has nephrotic syndrome with generalized anasarca. In this disorder, increased permeability of the glomerular capillary basement membrane leads to leakage of plasma protein into the glomerular filtrate and urine. The resulting hypoproteinemia causes a drop in circulatory volume. This leads to decreased renal perfusion and activation of the reninangiotensin system with subsequent release of aldosterone. Sodium is retained and the temporary hyperosmolality increases ADH secretion. Total body sodium and water increase, but the serum sodium does not usually change because the increased fluid goes into the extracellular space, causing edema. The secondary aldosteronism may also cause an increased bicarbonate, alkalosis, and hypokalemia. The nephrotic syndrome is also characterized by an increase in plasma lipid concentration which includes cholesterol, phospholipids, and triglycerides.

124. An 85-year-old woman with an ileal conduit has recurrent sepsis due to pyocystis despite weekly bladder irrigations with antibiotic solution. Cystoscopy demonstrates no evidence of malignancy. The next step is:
A. prophylactic oral antibiotics.
B. intravesical silver nitrate.
C. suprapubic cystostomy.
D. vaginal vesicostomy.
E. simple cystectomy.
ANSWER=D
Pyocystis occurs in approximately 20% of patients who undergo supravesical diversion. Patients typically have a malodorous discharge and may develop sepsis. If conservative measures such as routine bladder irrigations fail, vaginal vesicostomy (creation of a large vesico-vaginal fistula) is an effective method of preventing pyocystis. This is an especially good alternative for an elderly or high-risk patient. A stapling device can be used to quickly perform this operation. Absorbable staples should be used if the patient is sexually active.

125. A 49-year-old man has a persistently palpable 2 cm right inguinal lymph node following circumcision and six weeks of antibiotics for a grade 1 non-invasive squamous carcinoma of the penis confined to the prepuce. CT scan of abdomen and pelvis and chest x-ray are negative. The next step is:
A. needle biopsy of lymph node.
B. additional six weeks of antibiotics.
C. bilateral inguinal lymphadenectomy.
D. right ilioinguinal lymphadenectomy.
E. bilateral ilioinguinal lymphadenectomy.
ANSWER=A
Patients with CIS, or non-invasive low grade (grade 1 or 2) penile cancers have an extremely low risk of regional node metastasis. In patients with non-invasive low-grade tumors following treatment, if there is palpable adenopathy, a course of antibiotics is warranted and often the adenopathy will resolve. Since the incidence of inguinal metastasis in this group of patients is essentially anecdotal, if adenopathy persists after antibiotics, needle biopsy should be performed. If the needle biopsy is non-informative, an excisional biopsy is recommended. If biopsy is positive, bilateral lymphadenectomy is warranted. If negative, these patients can be observed.

126. A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:
A. hemodialysis.
B. Kayexalate enema.
C. intravenous sodium bicarbonate and calcium gluconate.
D. intravenous concentrated glucose and regular insulin in the same infusion.
E. intravenous concentrated glucose and regular insulin in separate infusions.
ANSWER=C
Most (99%) of total body potassium is located within cells. Extracellular potassium is closely regulated to maintain resting membrane potentials that are critical to nerve and muscle function. Potassium is secreted by the distal convoluted tubule and collecting duct. When this mechanism is impaired in renal failure, hyperkalemia (plasma K in excess of 5.3 mEq/l) occurs. This patient is nearing a crisis in terms of cardiac function. Calcium gluconate immediately but transiently mitigates the potassium effect. Sodium bicarbonate lowers plasma K+ concentration within an hour. Hemodialysis and Kayexalate cannot be initiated as quickly. Insulin and glucose also take 30-60 minutes to work.

127. The presumed mechanism of action of sodium pentosan polysulfate (Elmiron®) is:
A. decreased mast cell degranulation.
B. increased urothelial cell proliferation.
C. decreased cytokine expression in bladder.
D. increased glycosaminoglycan expression in bladder.
E. decreased antiproliferative activity.
ANSWER=D
One theory of interstitial cystitis is increased bladder urothelial permeability due to a diminished urothelial glycosaminoglycan (GAG) layer. Oral sodium pentosan polysulfate (Elmiron) presumably increases the GAG layer and thereby decrease bladder permeability. However, randomized prospective trials have only shown modest efficacy of sodium pentosan polysulfate.

128. The MRI signal intensity seen for various parts of the prostate on T2-weighted images are best described as:

	Peripheral Zone	**Central Zone**	**Seminal Vesicles**
A.	high	intermediate	high
B.	intermediate	high	high
C.	high	intermediate	intermediate
D.	high	high	intermediate
E.	intermediate	high	intermediate

ANSWER=A
Prostate MRI scan with endorectal coil may be a useful modality for evaluation of prostate cancer. Specifically, the test may be useful for identifying extraprostatic disease and intraprostatic lesions. On T1 images, there is little intraprostatic detail but on T2 images, there are differences in signal intensity that allow the reader to distinguish between the various anatomic components of the gland and identify the location of lesions. Specifically, on T2 images, the peripheral zone has high signal intensity, the central zone has intermediate intensity, and the seminal vesicles have high signal intensity, as do the neurovascular bundles and the dorsal venous complex.

129. A four-year-old boy with a previously treated PUV and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:
A. vasopressin.
B. salt restriction.
C. postvoid catheterization.
D. decrease oral fluid intake.
E. increase frequency of voiding.
ANSWER=E
Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction. Salt restriction as well will not usually result in reduction in urine volume. These patients, by definition, will not respond to vasopressin. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this boy to get up once or twice per night. The character of this bladder will have major impact on therapy. If the bladder has reduced compliance with a reduced volume, antimuscarinic therapy should be considered.

130. A 65-year-old woman has intermittent dysuria and urgency. There is no association with sexual activity, and there are no urinary symptoms between episodes. Voided midstream urinalyses while symptomatic reveal occasional RBCs, 1 to 3 WBCs, and 1 to 3 squamous epithelial cells per hpf. Initial management should be:
A. urine culture during symptomatic episodes.
B. prophylactic antibiotics.
C. cystoscopy.
D. renal ultrasound.
E. assess PVR.
ANSWER=A

There is no documentation of infection, and suppressive antibiotics should not be considered until infections are documented. Further evaluation of the bladder and upper tract are not needed yet, given the lack of symptoms between episodes and the absence of hematuria, although additional assessment may be appropriate later. An additional test that might also be considered is urinalyses of a catheterized urine sample, given the apparent contamination of the voided midstream urinalyses by vaginal epithelial cells. If the urine culture is negative while the patient is symptomatic, then a catheterized specimen is not necessary.

131. A 60-year-old man with clinical T2N0M0 bladder cancer elects radical cystectomy and Indiana Pouch diversion. Pre-operative evaluation should include:
A. sigmoidoscopy.
B. barium enema.
C. colon biopsy.
D. colonoscopy.
E. upper Gl with small bowel follow through.
ANSWER=D
Preoperative colonoscopy is indicated in procedures that may require the use of large bowel. Sigmoidoscopy only is insufficient because more proximal disease may leave the patient with a short colon syndrome. A barium enema may miss small polyps. The surgeon should always be ready for unexpected anatomic variations that may cause a change in plan.

132. Following ablation of a PUV in a newborn male, difficulty passing a catheter into the bladder is most likely due to:
A. incompletely resected urethral valves.
B. a false passage.
C. a prostatic utricle.
D. hypertrophied bladder neck.
E. external sphincter spasm.
ANSWER=D
Bladder outlet obstruction, as seen with a PUV, will often result in detrusor hypertrophy as well as hypertrophy of the bladder neck. Bladder neck hypertrophy creates an angulation of the posterior urethra anteriorly which can result in a difficult catheterization as the catheter hits up against the wall of the hypertrophied bladder neck. It is important to recognize this when trying to catheterize a child with a history of a PUV even if it has been many years following valve ablation.

133. A healthy 32-year-old sexually active man has two 3.0 mm warts on his penile shaft. The next step is:
A. observation.
B. examination of his sexual partner.
C. type-specific HPV nucleic acid testing.
D. biopsy.
E. chemical or surgical removal.
ANSWER=E
No definitive evidence suggests that any of the available treatments is superior to any other for genital warts. While treatment may reduce infectivity, the potential for infectivity is probably not eradicated. Diagnosis of genital warts can be confirmed by biopsy, although biopsy is needed only under certain circumstances: for example, the warts do not respond to standard therapy; the disease worsens during therapy; the patient is immunocompromised; or warts are pigmented, indurated, fixed, and ulcerated. According to CDC guidelines, examination of sex partners is not necessary for the management of genital warts because no data indicate that reinfection plays a role in recurrences, and no data support the use of type-specific HPV nucleic acid tests in the routine diagnosis or management of visible genital warts.

134. A 56-year-old man with invasive bladder cancer desires a continent urinary diversion at the time of cystectomy. He has minimal proteinuria and a creatinine of 2.3 mg/dl. He may be an appropriate candidate for continent diversion if which of the following parameters are obtained for GFR (inulin clearance test), urinary acidification (in response to ammonium chloride loading) and urine osmolality (in response to water deprivation):

GFR (ml/min)	pH (uOSM)	uOSM (OSM/kg)
A. 39	4.9	750
B. 31	6.6	500
C. 45	5.5	350
D. 40	6.3	550
E. 30	5.5	650

ANSWER=A
Chronic renal insufficiency is a relative contraindication to continent urinary diversion as more renal function is necessary with a retentive type of diversion as compared to a short ileal conduit. In general, patients without proteinuria and a creatinine of less than 2.0 mg/dl do well with continent urinary diversion. In patients with a creatinine over 2.0 in whom a continent urinary diversion is being considered, a more detailed analysis of the other components of renal function is necessary. Patients with minimal proteinuria, a GFR over 35 ml/min, a urine pH less than 5.8 with acid loading, and a urine osmolality of over 600mOSM in response to water deprivation are appropriate candidates for continent urinary diversion .

135. The maximal allowable dose of bupivacaine (Marcaine) in mg/kg is:
A. 1.00.
B. 1.50.
C. 2.50.
D. 4.00.
E. 6.00.
ANSWER=C
Bupivacaine is a long acting local anesthetic. It is widely used for regional neural blocks and caudal blocks for postoperative analgesia. Its effect endures for eight hours or more. The toxicity of bupivacaine involves hypertension and heart block which is difficult to reverse. A dose above 2.5 mg/kg should not be exceeded. The mean seizure dose in monkeys is 4.4 mg/kg and the LD 50 in mice was 6 mg/kg intravenously.

136. An important source of error in using the nitrite urinary dipstick is:
A. extended exposure of the dipstick to room air.
B. insufficient urinary nitrate from the diet.
C. lack of bacterial nitrate production.
D. degradation of urinary nitrite in the bladder overnight.
E. interference from leukocyte esterase.
ANSWER=A
While the nitrite urinary dip stick is considered to have good specificity for detecting a UTI, it has poor sensitivity. This is because the nitrite test strip relies on the reduction of urinary nitrate to nitrite by bacterial production of nitrate reductase. A false negative will be obtained if bacteria do not produce nitrate reductase, if bladder urine incubation time is insufficient for the reduction to take place, and if bacterial numbers are too low (the latter two problems are associated with increased urinary frequency from UTI). Urinary nitrate from the normal human diet does not cause a positive nitrite result. Exposure of the dip stick to room temperature and humidity (i.e. not closing the cover on the bottle between uses) for a week will cause a false positive.

137. A 32-year-old woman with a solitary kidney underwent urinary diversion with an ileal conduit as a child. She has stable, moderate hydronephrosis, but her serum creatinine has risen to 2.8 mg/dl. A loopogram shows no reflux and no residual urine. A diuretic renogram reveals delay in uptake of the radiopharmaceutical and poor response to diuretic with a T1/2 of 22 minutes. The next step is:
A. revision of the ileal conduit.
B. antegrade pressure perfusion study.
C. renal biopsy.
D. non-contrast CT scan.
E. hydrate and repeat the renogram.
ANSWER=B
This woman most likely has chronic renal insufficiency and the renogram reflects this condition. Diseased kidneys may respond poorly to diuretic in the absence of obstruction. The only way to establish conclusively if obstruction exists would be to place a nephrostomy tube. A pressure-flow study can then be performed and the serum creatinine observed. A renal biopsy, if performed, is likely to show focal segmental sclerosis and/or chronic pyelonephritis but this is not helpful in management.

138. An eight-year-old girl is evaluated for microscopic hematuria. Abdominal films demonstrate bilateral

nephrocalcinosis with fine flecks of calcium appearing in most papillae. Renal function is normal. The most likely diagnosis is:
A. distal RTA.
B. idiopathic hypercalciuria.
C. Fanconi syndrome.
D. proximal RTA.
E. hyperparathyroidism.
ANSWER=A
Nephrocalcinosis occurs primarily in children with distal RTA. This is characterized by impaired hydrogen ion excretion in the distal collecting duct. It rarely occurs in proximal RTA which results from an impairment in proximal tubular bicarbonate reabsorption or in the Fanconi syndrome where excessive amounts of amino acids are excreted along with organic anions such as citrate which tend to prevent calcium precipitation. Idiopathic hypercalciuria and primary hyperparathyroidism rarely cause nephrocalcinosis, but when present the acidification defect found in distal RTA usually coexists.

139. When renal exploration for penetrating trauma is performed without initial renal vascular control, the result, compared to early vascular control, is:
A. decreased operative time.
B. increased blood loss.
C. increased renal loss.
D. increased blood transfusions.
E. decreased mortality.
ANSWER=A
Traditionally, it has been taught that early vascular control of the renal hilum allows for safe renal exploration. It has been assumed that early vascular control decreases blood loss, renal loss, need for blood transfusions and mortality. Most data, however, are anecdotal and based on literature review. A randomized prospective study of 56 patients during a 53 month period was undertaken comparing outcomes of those patients with early vascular control versus those with renal exploration without initial renal vascular control. Those patients who underwent early vascular control required increased operative time and required more blood transfusions due to increased blood loss. There was no increase in mortality in those patients explored without first obtaining vascular control. Renal loss was similar between the two groups. The thinking that penetrating renal trauma should be approached after establishing hilar control may not only increase operative time but may increase the risk of blood loss and need for blood transfusions. These observations may not hold true for blunt trauma or less severe kidney injuries, in which the risk of nephrectomy is lower.

140. A 62-year-old man underwent an ileal conduit using a loop (Turnbull) stoma. He has abdominal discomfort and a large parasternal hernia after two failed repairs. The next step is:
A. conversion to colon conduit.
B. application of abdominal binder.
C. closure of the fascial defect with synthetic mesh graft.
D. transposition of stoma to opposite side of abdomen.
E. conversion to standard end-on stoma.
ANSWER=D
Parastomal hernias occur more commonly with loop than end-on stomas. The most effective method of such hernia management is by relocation of the stomal site to the other side of the abdominal wall and by closure of the hernia. Meticulous closure of the rectus fascia is the best method of preventing this complication.

141. The most common long-term problem in neonates with unilateral renal vein thrombosis is:
A. nephrotic syndrome.
B. hypertension.
C. renal scarring.
D. glomerulonephritis.
E. recurrent renal infection.
ANSWER=B
Renal vein thrombosis in childhood most often presents with gross hematuria in association with a flank mass, thrombocytopenia, metabolic acidosis, tachypnea, pallor, failure to thrive, proteinuria, and diminished renal function. Bilateral renal vein thrombosis in childhood is uncommon. Conservative (non-surgical, non-interventional) management results in a survival rate approaching 90%. Hypertension, the most common long-term problem encountered after unilateral renal vein thrombosis, may be seen in 15%. Delayed nephrectomy appears the most successful management for hypertension after unilateral renal vein thrombosis.

142. A 22-year-old man suffered a pelvic fracture and urethral disruption five months ago. Combined retrograde urethrography and antegrade cystography reveals complete obliteration of the posterior urethra with a 2 cm defect. He cannot maintain an erection sufficient for intercourse. Prior to definitive urethral reconstruction, evaluation should include:
A. dynamic infusion cavernosometry.
B. nocturnal penile tumescence testing.
C. in office intracavernosal injection of alprostadil.
D. penile duplex Doppler ultrasound with intracavernosal injection.
E. pelvic MRI scan.
ANSWER=D
Erectile dysfunction (ED) is common in patients with pelvic fracture associated urethral injury. Mechanisms include neurogenic and vasculogenic injury, and the latter has implications for urethral reconstruction. Posterior urethroplasty for prostatomembranous urethral distraction defects requires mobilization of the corpus spongiosum and depends on retrograde blood flow through the dorsal arteries and glans penis to the distal urethra. Insufficiency of the spongiosal circulation is associated with failure of bulboprostatic anastomotic urethroplasty. Erectile function should be assessed and documented in such patients before attempting urethroplasty. If erections are normal, then inflow from the internal pudendal artery-common penile arterydorsal penile arterial tree is considered to be intact. For patients with ED, in the majority erectile dysfunction is caused by disruption of the cavernous nerves with sparing of arterial inflow. However, in cases of cavernosal arterial insufficiency, the disruption of the internal pudendal artery will lead to insufficient arterial inflow to the dorsal arteries; as a result, experts recommend arterial revascularization prior to urethroplasty in cases of diminished vascular inflow to the dorsal arteries.Cavernosometry is a significantly more invasive vascular test, and is not the investigation of choice in this patient. Nocturnal penile tumescence testing is a nonspecific test that will not identify specific vasculogenic etiologies of ED. In office intracavernosal injection of alprostadil will not differentiate arterial from venous mechanisms of vasculogenic ED. A complete response is still possible in cases of arterial insufficiency. Penile duplex Doppler ultrasonography can effectively diagnose cavernosal arterial insufficiency and may allow imaging of the dorsal penile arteries as well. Pelvic MRI scan has been used to identify crural disruption post pelvic fracture but does not have the resolution necessary to delineate arterial anatomy of the pudendal vascular tree.

143. A 70-year-old man undergoes transperineal brachytherapy with I seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18. Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 ml. There is no improvement with oral terazosin. The best management at this time is:
A. bicalutamide (Casodex).
B. tamsulosin (Flomax).
C. CIC.
D. finasteride (Proscar).
E. TURP.
ANSWER=C
Urinary retention after transperineal brachytherapy is common in men with significant pretreatment obstructive symptoms and is best managed by CIC. 1251 has a half-life of 60 days and TURP has been suggested to be contraindicated in the first nine months after treatment because of the risk of radioactive exposure to the surgeon, operating room personnel, and pathologists. It is well demonstrated that patients with retention following seed implant may resolve retention following six to twelve months of CIC. Given the increased risk of TUR following RT, it is preferable to observe the patient prior to surgical intervention. Response rates to all alpha blockers are similar and switching to another agent of the same class is unlikely to help. Either oral bicalutamide or finasteride will take several months to shrink the prostate.

144. A newborn boy has an enlarged tongue, visceromegaly, and an enlarged left leg. The next step in management is:
A. VCUG.
B. MRI scan.

C. serial abdominal ultrasounds.
D. alpha-fetoprotein and beta-hCG.
E. karyotype.
ANSWER=C
Beckwith Wiedemann syndrome is typified by macroglossia and visceromegaly. This includes hepatic enlargement and adrenal cortical cytomegaly. In addition, somatic overgrowth is common. Karyotype is normal. Many patients will have hemihypertrophy. Approximately 20% of the patients with Beckwith Wiedemann syndrome develop malignancies. These include Wilms' tumor, adrenocortical neoplasms, and hepatoblastoma. Testicular tumors have not been reported with increased frequency in these patients. Serial imaging will help detect tumors at an early stage of development. Ultrasound is sufficient and VCUG and MRI scans are overly aggressive.

145. A 33-year-old man has sharply marginated, dusky red patches on his inner thighs with complaints of pruritis. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:
A. topical nystatin (Mycostatin®).
B. topical tolnaftate (Tinactin®).
C. oral fluconazole (Diflucan®).
D. topical triamcinolone (Aristocort®).
E. oral prednisone (Deltasone®).
ANSWER=B
The clinical description is most consistent with a tinea cruris infection caused by a dermatophyte. Trichophyton rubrum, Trichophyton mentagrophytes and Epidermophyton floccosum are the most common causative organism. This condition is relatively common and should be easily recognized by urologists. Topical tolnaftate is specific treatment for this fungus. Topically applied nystatin is effective only in candidiasis. Orally administered fluconazole is not indicated. Steroid therapy should not be administered.

146. An asymptomatic 43-year-old man with a PSA of 5.4 ng/ml has diffuse inflammation noted on prostate biopsy. The next step is:
A. PSA surveillance.
B. empiric antibiotics.
C. NSAIDS.
D. repeat biopsy.
E. 5-alpha-reductase inhibitor.
ANSWER=A
Inflammation is found in up to 30% of prostate biopsies. Its presence could be suggestive of infection, but in the absence of clinical symptoms, empiric antibiotic therapy is not warranted. Anti-inflammatory drugs have been evaluated for potential chemotherapeutic effect, but there is no evidence that such drugs are indicated in the treatment of asymptomatic inflammation. It has also been postulated that inflammation may serve as an early precursor to prostate cancer, but as of yet, repeat biopsy for inflammation observed on biopsy is not routinely recommended. In this case, continued observation with follow-up PSA measurement is the appropriate next therapy.

147. Renal blood flow is autoregulated primarily by:
A. renal innervation.
B. the macula densa.
C. endothelin.
D. efferent arteriolar tone.
E. afferent arteriolar tone.
ANSWER=E
Autoregulation of GFR and renal blood flow occurs primarily through variation in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFR over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

148. During routine serologic screening, a 28-year-old sexually active man has a positive VDRL test. Confirmation of the test result should be made with:
A. careful history and physical examination.
B. the automated reagin test (ART).
C. repeat VDRL testing.
D. T. pallidum immobilization test (TPI).
E. fluorescent-treponemal antibody-absorbed test (FTA-ABS).
ANSWER=E
Nontreponemal, serologic tests like the VDRL and the Rapid Plasma Reagin (RPR) test are inexpensive, easy to perform, and are sensitive (except in those with very early disease or in those who acquired the disease in the distant past). However, false positive tests are not uncommon and patients with positive tests need to undergo more careful testing to confirm the diagnosis before treatment is undertaken. Transient false positive reaginic tests may be encountered in patients with acute viral infections (hepatitis, mononucleosis, varicella, herpes simplex or measles), malaria or during pregnancy. Sustained false-positive tests may occur in those with autoimmune diseases, intravenous drug abusers, the elderly and in those with certain chronic diseases (multiple myeloma or advanced malignancy). The false positive rate for VDRL is 1-2%. All positive tests should be confirmed with treponemal testing using T. pallidum particle agglutination (TP-PA) or fluorescent treponemal antibody absorbed (FTAABS) testing.

149. A 75-year-old man has a rising PSA following external beam radiotherapy for prostate cancer. His PSA level nadirs to 0.4 ng/ml, and is measured at 0.7 ng/ml, 2.1 ng/ml, and 5.4 ng/ml at 9, 12, and 15 months following radiotherapy, respectively. The next step is:
A. continued observation.
B. prostate biopsy.
C. lymph node dissection.
D. salvage cryoablation.
E. hormonal ablation.
ANSWER=E
At the time of biochemical relapse following local therapy, the PSA velocity or doubling time provides a strong prediction of the likelihood of disease related morbidity and mortality. Individuals with PSA doubling time less than three months are most likely to develop bone metastases and ultimately experience disease-related mortality. In these individuals, early intervention with systemic therapy, in this case hormonal ablation, is advisable. The high likelihood of microscopic metastatic disease predicts a low likelihood of local recurrence alone. As such, salvage cryoablation of the prostate would be unlikely to influence disease outcome. Prostate biopsy would not rule out the possibility of distant metastatic disease and therefore would not influence disease management. Lymph node dissection would not rule out distant metastases.

150. A neonate with a 10 cm renal mass has hypertension and a pulse of 200 bpm The likely etiology of his hypertension is:
A. renal vein thrombosis.
B. neuroblastoma.
C. congenital mesoblastic nephroma.
D. obstructive hydronephrosis.
E. pheochromocytoma.
ANSWER=B
Congenital neuroblastoma may present in a similar fashion as a pheochromocytoma, with symptoms produced by secretion of catecholamines. These symptoms have been reported occasionally in pregnant mothers with fetuses having catecholamine-secreting neuroblastomas. Congenital mesoblastic nephroma is not associated with paraneoplastic syndromes. Hydronephrosis and multicystic kidneys are rarely associated with hypertension but would not exhibit a hyperdynamic state with a pulse of 200. Renal vein thrombosis causes a renal mass associated with hematuria, anemia, and thrombocytopenia.

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1. During bladder filling, intraluminal ureteral pressure:

A: increases, and the frequency of contractions increase.
B: increases, and the frequency of contractions decrease.
C: increases, and the frequency of contractions is unchanged.
D: decreases once the frequency of contractions decrease.
E: remains stable while ureteral contractions decrease.
Answer= A.

As the bladder fills, resting pressure within the intravesical ureter increases. This results in an increase in intraluminal (ureteral) pressure and an increase in the frequency of ureteral contractions. The end result is continued excretion of urine into the filling bladder.

2. A 54-year-old man who underwent a successful open pyeloplasty 20 years ago develops recurrent flank pain. Diuretic renography reveals recurrent UPJ obstruction with 30% ipsilateral renal function. Retrograde pyelogram reveals a 1 cm UPJ stricture. The next step is:

A: balloon dilation.
B: endopyelotomy.
C: re-do pyeloplasty.
D: ureterocalycostomy.
E: nephrectomy.
Answer= B

This is an excellent patient for an endopyelotomy. For "secondary" UPJ obstruction, it is reasonable to recommend an open or laparoscopic approach to any patient who has failed a primary endourologic management and an endourologic approach to those who have failed an open or laparoscopic repair. The results of endourologic management in this setting are generally excellent. Ureteral stenting and balloon dilation are not good long-term options and nephrectomy is not necessary at this point.

3. A 65-year-old man with clinical T2 bladder cancer desires bladder preservation. After a complete transurethral resection, he undergoes induction radiation and chemotherapy with 5-FU and cisplatin. Three months later, he has another T2 tumor that is completely resected. The next step is:

A: additional radiation.
B: taxane-based chemotherapy.
C: taxane-based chemotherapy and radiation.
D: cisplatin-based chemotherapy and radiation.
E: radical cystectomy.
Answer= E.

Attempts at bladder sparing must be selective; not all patients with muscle invasive disease are candidates. Favorable selection criteria include tumors that can be substantially removed by TUR and making certain that a complete response following initial chemoradiation induction is achieved, as measured by follow-up cytology and cystoscopic biopsies. Only if there is a complete response with induction therapy is consolidation chemotherapy recommended. If residual disease is found, cystectomy is recommended.

4. A 47-year-old man with diabetes mellitus has erectile dysfunction, decreased vibratory sensation in his feet and fasting blood sugars over 300 mg/dl. The best treatment of his erectile dysfunction is:

A: exogenous testosterone.
B: exogenous gonadotropins.
C: improved diabetic control.
D: a daily Vitamin B complex.
E: penile prosthesis.
Answer= E.

Exogenous androgen, gonadotropin and vitamin therapy do not restore potency in the diabetic male. Even with good control of the underlying diabetes, erectile dysfunction usually persists. Alternative therapies such as sildenafil citrate, intracavernous injection therapy, and a vacuum erection device can also be effective in many of these patients. Some diabetic patients will ultimately require a penile prosthesis.

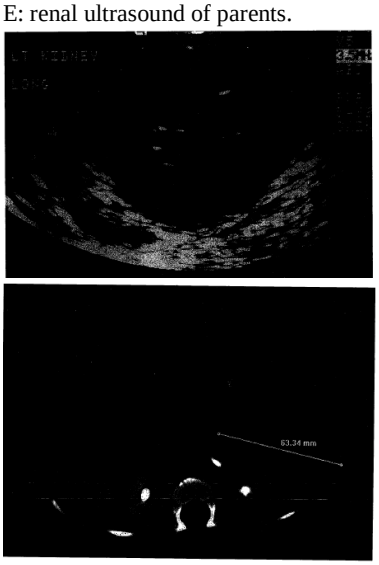
5. A 48-year-old man and his 44-year-old wife wish to have another child. Fifteen years previously, he had a vasectomy and four years ago he failed vasectomy reversal. No sperm were found in the vas at the time of surgery. The wife's menses are regular. The best chance for pregnancy is:

A: open epididymal aspiration with IVF and ICSI.
B: needle aspiration of the testicle with IVF and ICSI.
C: gynecologic evaluation of wife then bilateral vasoepididymostomy if her evaluation is normal.
D: donor eggs and needle aspiration of the testicle with IVF and ICSI.
E: re-do microscopic two-layer vasovasostomy.
Answer= D

Results of standard IVF or ICSI are extremely poor in women over age 40. Current data demonstrate a 4% live birth rate per cycle in 44 year old women. With donor eggs the pregnancy rate is approximately 50%. The overall rate of pregnancy after vasoepididymostomy is 30-50% but is dramatically lower with a wife of age 40.

6. A three-year-old girl has a febrile UTI. Ultrasound and CT scan are shown. The next step is:

A: DMSA scan.
B: nephrectomy.
C: antibiotics and repeat ultrasound in three months.
D: percutaneous aspiration.
E: renal ultrasound of parents.



Answer= B

The imaging studies show a large complex cystic lesion that is not the result of an infectious process. The lesion is not typical for inherited cystic disease and parental evaluation is of no value. The differential diagnosis is either a cystic Wilms' vs. a multilocular cystic nephroma. Diagnosis and treatment should be made based on the pathology following a nephrectomy.

7. The renal artery occlusive disease most likely to be associated with stable renal function is:

A: intimal fibroplasia.
B: medial hyperplasia.
C: medial fibroplasia.
D: perimedial fibroplasia.
E: atherosclerotic disease.
Answer= C.

Patients with medial fibroplasia seldom have an increase in serum creatinine, reduction in kidney size, or loss of renal function. Despite the progressive nature of this disease, progressive arterial occlusion

is relatively rare. Therefore, renal revascularization for preservation of renal function need not be routinely undertaken even for patients with bilateral disease. Operative intervention or transluminal angioplasty can be limited to those patients with hypertension refractory to control with drug therapy. Progressive ischemic nephropathy leading to loss of function is the end stage of the pathophysiology of perimedial or intimal fibroplasia, medial hyperplasia, and atherosclerotic disease.

8. A 45-year-old woman has a sudden onset of severe right flank pain. CT scan shows a right perirenal hematoma. The most likely underlying cause is:
A: renal adenocarcinoma.
B: renal angiomyolipoma.
C: renal artery aneurysm.
D: polyarteritis nodosa.
E: complex renal cyst.
Answer= A.
The most common cause of retroperitoneal hemorrhage is rupture of an abdominal aortic aneurysm. Renal and adrenal diseases account for the second and third most common causes respectively. Although both malignant and benign renal tumors may rupture, renal adenocarcinomas account for the majority of hematomas. Follow-up CT imaging after resolution of the hematoma will be necessary to rule-out the presence of a renal tumor that can be hidden by the retroperitoneal and perirenal hematoma.

9. A 45-year-old obese man has hypertension, new onset diabetes and general weakness. Two 24-hour urine collections show elevated cortisol levels. The next step is:
A: low-dose dexamethasone test.
B: late afternoon plasma corticotrophin and cortisol measurement.
C: high-dose dexamethasone test.
D: metyrapone test.
E: abdominal CT scan.
Answer= B.
Elevated urinary cortisol levels confirm the diagnosis of Cushing's syndrome but do not provide information about the etiology of the condition. The next step to determine the etiology is to measure late afternoon or midnight plasma corticotrophin and cortisol levels. This will determine if the Cushing's is ACTH-dependent or ACTH-independent. If ACTH levels are not elevated, then the likely source is adrenal and an abdominal CT scan with attention to the adrenals is appropriate. However, it is preferable and more efficient to determine if ACTH levels are elevated, as the etiology of the Cushing's is unlikely to be of adrenal origin if ACTH is elevated. High-dose dexamethasone test is indicated if ACTH levels are elevated to determine if the source of the elevated corticotrophin is pituitary. Similarly, the metyrapone test is used to assess whether excess ACTH secretion is pituitary or ectopic in nature and is only appropriate if serum corticotrophin levels are elevated.

10. In a paraplegic man with a T12 spinal cord transection, the major complication of external urethral sphincterotomy is:
A: significant hemorrhage.
B: acute urinary tract sepsis.
C: priapism.
D: impotence.
E: autonomic dysreflexia.
Answer= A.
Significant hemorrhage is the major complication to be anticipated in the performance of an external sphincterotomy. Autonomic dysreflexia would not be anticipated to be a major problem because of the level of the lesion. Autonomic dysreflexia is seen with spinal cord lesions that occur above the level of the sympathetic outflow tract (T6). With appropriate antibiotic coverage, acute urinary tract sepsis is usually not a major problem. Likewise, priapism or impotence are rarely if ever encountered during the performance of this operative procedure.

11. A 60-year-old woman complains of peristomal pain three days after undergoing a radical cystectomy and ileal conduit for bladder cancer. A 16 Fr straight catheter is in the conduit; ureteral stents were not utilized. Her stoma was initially dusky, and is now black. The next step is:
A: remove conduit catheter.
B: loopogram.
C: bilateral percutaneous nephrostomies.
D: loop endoscopy.
E: observation.
Answer= D.
Vascular thrombosis of the intestinal conduit is often related to excessive tension in the mesentery of the chosen bowel segment, a hematoma in the mesentery, or inadvertent ligation of the major blood supply to the conduit. This can lead to necrosis of the stoma or the entire bowel segment. The stoma may normally appear dusky at the termination of the procedure. However, a pink to red appearance of the stoma should develop over the ensuing hours or days. If the stoma worsens in color, the patient develops pain around the stoma, or an obvious urine leak occurs, stomal necrosis is likely. This problem should be corrected on a semi-emergent basis. Loop endoscopy should be performed to determine the extent of ischemia. The extent of ischemia will determine the operative approach. Pressure from a 16 Fr Foley catheter is very unlikely to cause significant ischemia.

12. Temsirolimus treatment in poor risk patients with metastatic RCC is most effective when given:
A: oral daily.
B: subcutaneously weekly.
C: I.V. weekly.
D: subcutaneously three times per week.
E: I.V. weekly in combination with subcutaneous interferon.
Answer= C.
Temsirolimus acts as an inhibitor of the mammalian target of rapamycin (mTOR). The combination of temsirolimus with interferon alfa was in fact inferior to temsirolimus alone when treating patients with advanced metastatic RCC. The mode of delivery that has been studied and proven effective in this setting is 25 mg administered weekly. This regimen resulted in a survival advantage in poor risk patients with metastatic RCC.

13. A woman with urinary incontinence occurring only during orgasm is best managed by:
A: behavioral therapy.
B: a bladder neck sling.
C: alpha-agonist medication.
D: antimuscarinic medication.
E: bladder neck collagen injection.
Answer= D.
Incontinence during sexual intercourse is not an infrequent problem and is often incorrectly assumed to be due to stress urinary incontinence. Most women respond to antimuscarinic medication, suggesting the etiology is detrusor overactivity. Behavioral therapy is not effective. Since the mechanism is unrelated to stress incontinence, alpha-agonist, sling, and collagen injection are not indicated.

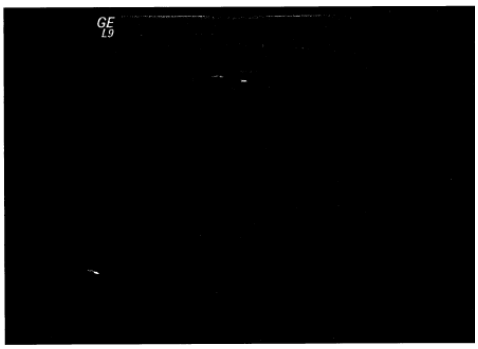
14. A 60 kg, 40-year-old woman with recurrent calcium oxalate nephrolithiasis has normal serum calcium and phosphorus levels. Twenty-four hour urine parameters are: Calcium 350 mg, Creatinine 2200 mg, Oxalate 50 mg, Citrate 1000 mg, Uric Acid 800 mg. The next step is:
A: hydrochlorothiazide therapy.

B: allopurinol therapy.
C: pyridoxine therapy.
D: creatinine clearance.
E: repeat 24-hour urine collection.
Answer= E.
Urinary creatinine provides an assessment of the completeness of a urine collection. In women, it should be 14-21 mg/kg/day and, in men, it should be 20-27 mg/kg/day. This individual over-collected as her urinary creatinine excretion was greater than 30 mg/kg/day. Repeating a urine collection would be the most appropriate step.

15. A 62-year-old man with metastatic prostate cancer is treated with leuprolide acetate 30 mg intramuscular every four months and bicalutamide 50 mg daily. Eight months after an initial complete response, his PSA rises to 14 ng/ml and several new bone lesions are seen on bone scan. The next step is:
A: serum testosterone level.
B: perform orchiectomy.
C: increase bicalutamide to 150 mg daily.
D: stop bicalutamide.
E: docetaxel and prednisone.
Answer= A.
Guidelines for hormone refractory prostate cancer (HRPC) have been established. Patients with evidence of disease progression should have their serum testosterone checked to ensure a castrate level as an initial step. If the testosterone level is not castrate on an LH-RH analogue, then surgical castration should be performed. Once the testosterone is established to be < 50 ng/dl, then the patient's antiandrogen (bicalutamide in this scenario) should be stopped and the patient observed for response to antiandrogen withdrawal. However, the patient should be maintained on medical or surgical castration continuously to suppress the hormone sensitive population of cancer cells.

16. A 65-year-old man with insulin-dependent diabetes chooses a vacuum constriction device for treatment of erectile dysfunction. After attempted use he reports insufficient rigidity for penetration. The most likely explanation is:
A: inadequate cavernosal arterial flow.
B: fibrosis of the corpora spongiosum.
C: corporal muscle dysfunction.
D: diabetic neuropathy.
E: improper device use.
Answer= E.
The vacuum constriction device should create penile rigidity sufficient for vaginal penetration in almost all impotent men who are treated. Adequate rigidity should be obtained, as long as the patient does not have significant intracorporal scarring from severe Peyronie's disease or a prior infected penile implant. Vacuum constriction devices even work in patients who have had a penile prosthesis removed. Often patients who are not given adequate instruction initially will not apply sufficient vacuum to fully distend the penis or do not use a small enough compressive ring at the base to achieve adequate rigidity. In these cases, instruction and reassurance is usually all that is necessary.

17. A one-month-old boy has a history of unilateral prenatal hydroureteronephrosis. An ultrasound of the right kidney is shown. The most likely explanation for the finding is:
A: VUR into the upper pole.
B: upper pole UPJ obstruction.
C: ectopic upper pole ureter.
D: renal cyst.
E: calyceal diverticulum.



Answer= C.
The ultrasound demonstrates a duplicated system with upper pole hydronephrosis. The most likely explanation for this finding in a newborn is an ectopic upper pole ureter. The upper pole of a duplex system has a higher incidence of ectopia than the lower pole ureter because the upper pole ureter originates higher on the mesonephric duct and requires absorption of a longer segment of common excretory duct before it becomes incorporated in the bladder. The hydronephrosis results from distal ureteral obstruction as the ureter passes through the sphincteric mechanism of the bladder neck. UPJ obstruction of the upper pole segment is possible but much less common and would not have a dilated ureter. VUR into the upper pole is possible in association with ectopia, although VUR is usually not present with an ectopic upper pole ureter. A renal cyst or a calyceal diverticulum would be contained within surrounding normal renal tissue.

18. A 42-year-old man has gross hematuria. Evaluation reveals a 9 cm left renal mass and diffuse metastases in lung and bone. Cystoscopy is normal. Cytoreductive nephrectomy prior to systemic tyrosine kinase inhibitor therapy will:
A: improve response to therapy.
B: reduce pro-angiogenic factors.
C: resolve hematuria.
D: improve drug delivery to metastatic sites.
E: increase survival.
Answer= C.
Cytoreductive nephrectomy prior to systemic therapy in patients with metastatic RCC has been offered for a variety of reasons, including palliation of symptoms, potential for spontaneous regression of metastases, and potential improvement in response to systemic immunotherapy. Two randomized trials demonstrated that cytoreductive nephrectomy prior to systemic therapy did not improve response to interferon, but did improve survival. Cytoreductive nephrectomy prior to tyrosine kinase inhibitor has not been evaluated in a randomized trial, and, therefore, it is not known whether it improves response to therapy or survival in this setting. Improvement in drug delivery or reduction of pro-angiogenic factors have likewise not been studied. In this case, it can only be said that nephrectomy will resolve the hematuria.

19. The condition that leads to a decrease in circulating blood volume is:
A: reduced renal arterial pressure.
B: angiotensin II excess.
C: catecholamine excess.
D: hepatic venous congestion.
E: hyperaldosteronism.
Answer= C.
Increased renin with increased aldosterone will lead to an increase in circulatory blood volume. In hepatic venous congestion, aldosterone metabolism is diminished. Adrenal cortical adenoma causes mineralocorticoid excess and increased blood volume. Of all the conditions cited, only catecholamine excess, such as one might see in a patient with pheochromocytoma, is known to be associated

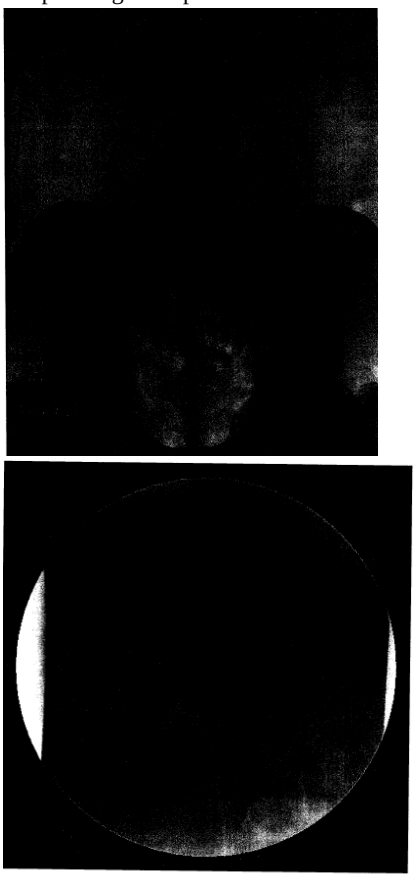
with a decreased blood volume. This is the reason that preoperative volume expansion is important in patients with pheochromocytoma.

20. A 53-year-old man with a PSA of 2.7 ng/ml undergoes 12-core TRUS prostate needle biopsy. Pathology reveals focal high-grade PIN and atypical adenomatous hyperplasia (adenosis). The next step is:
A: examine multiple deeper tissue sections of current biopsy.
B: immediate repeat 12-core TRUS biopsy.
C: immediate saturation biopsy.
D: repeat PSA in six months.
E: delayed TRUS biopsy in six months.
Answer= D.
The management of high-grade PIN has changed in the past five years. With the standard biopsy now including 10 to 12 cores, it is no longer considered mandatory for patients to undergo immediate rebiopsy of their prostate. However, in the setting of accompanying atypical small acinar proliferation (ASAP), immediate rebiopsy and/or additional examination of the original biopsy with deeper sections is usually recommended. In this case, however, the patient has atypical adenomatous hyperplasia (adenosis), which is felt to be a benign process and, therefore, does not require immediate rebiopsy. The patient, therefore, should be treated as if he has isolated high-grade PIN and should have serial PSA monitoring. If the PSA is increased in six months, repeat biopsy should be considered. If the PSA remains unchanged, however, rebiopsy should not be undertaken in six months.

21. The most likely side effect of thiazide diuretic therapy for renal hypercalciuria is:
A: hypotension.
B: hyperkalemia.
C: hypocitraturia.
D: skin rash.
E: hyperoxaluria.
Answer= C.
Thiazides are considered selective medical therapy for patients with renal hypercalciuria. However, thiazide use can be associated with hypokalemia, subsequent intracellular acidosis and significant hypocitraturia. Thiazide-induced hypocitraturia is the most common complication associated with thiazide therapy of hypercalciuria. Thiazides may also cause hyperuricosuria which can also exacerbate calcium stone formation.

22. The validity of a creatinine clearance test can best be determined by simultaneously measuring or calculating the:
A: total creatinine excreted.
B: total sodium excreted.
C: total urea excreted.
D: total urine volume excreted.
E: average urine osmolality.
Answer= A.
The total amount of creatinine excreted each 24 hours is dependent upon muscle mass and is generally constant. An incomplete collection is suggested by an incorrect amount of total creatinine in a 24-hour specimen; the normal production of creatinine is 1.0 mg/kg/hr.

23. A 67-year-old man has persistent urinary drainage from a flank drain ten days following laparoscopic partial nephrectomy for a 3 cm upper pole mass. A retrograde ureteral stent was placed at the time of surgery. A KUB and renal image during cystography are shown. The next step is:
A: observation.
B: percutaneous nephrostomy.
C: advance drain.
D: reposition stent.
E: open surgical repair.



Answer= D.
Following partial nephrectomy, a urinary fistula can develop in up to 17% of patients. This patient has persistent urinary drainage from his partial nephrectomy site despite placement of a ureteral stent. The radiographic studies demonstrate an incomplete duplication of the ureter with the stent in the lower pole moiety. The upper pole system (the site of the partial nephrectomy) remains unstented with persistent drainage. Observation will likely not improve the problem, and the drain should be left alone. The best treatment would be to reposition the stent into the upper pole collecting system and placement of a urethral catheter. Once the drainage stops, the urethral catheter can be removed, followed by the removal of the drain at a later date. The ureteral stent should be removed last. Greater than 99% of urinary fistula following partial nephrectomy resolve either spontaneously or with endoscopic management.

24. A 46-year-old man with a congenital solitary kidney has a partial nephrectomy for a 3 cm RCC. At his first follow-up visit he is doing well. Physical exam is normal and routine laboratory studies are normal except for a stable but slightly elevated creatinine of 1.7 mg/dl, and a urinalysis with 2+ proteinuria. The next step is:
A: cholesterol and lipid panel.
B: 24-hour urinary protein measurement.
C: CT scan of the abdomen.
D: MRI scan of the abdomen.
E: nuclear medicine renography.
Answer= B.
Evidence-based guidelines for the follow up of patients after partial nephrectomy for localized RCC have been published. As with radical nephrectomy, the data indicates that follow up should be tailored according to pathological stage and risk of recurrence. Patients with a solitary remnant kidney are at risk of renal functional deterioration as a result of hyperfiltration injury. Because proteinuria is the initial manifestation of hyperfiltration injury and can be seen even with stable serum creatinines, a urinalysis checking for significant proteinuria, or a 24-hour urine protein measurement should be obtained yearly in patients with a solitary remnant kidney.

This is important because dietary (protein restriction) and pharmacologic (angiotensin-converting enzyme inhibitors) intervention may prevent or lessen the damaging effects of hyperfiltration.

25. Pretransplant bilateral nephrectomy is necessary for:
A: glomerulonephritis.
B: polycystic kidney disease.
C: medullary sponge kidney.
D: diabetes.
E: recurrent pyelonephritis.
Answer= E.
Of the conditions listed, the only solid indication for pretransplant nephrectomy is the patient with a well- documented history of pyelonephritis. Pretreatment bilateral nephrectomy is most important in those patients with active infection. The hazards of active infection and immunosuppression certainly justify the risk. There is no indication for nephrectomy in the patient with glomerulonephritis. Patients with polycystic disease do not require bilateral nephrectomy prior to transplantation unless the kidneys are infected, contain abscesses or are too large. Cases of diabetes and medullary cystic disease not associated with UTI need not have pretransplant nephrectomy.

26. A 38-year-old azoospermic man with secondary infertility has an ejaculate volume of 0.3 ml. Post ejaculate urine contains no sperm. Serum testosterone and FSH are normal, both vasa are palpable, and testicular volume is normal. Transrectal ultrasonography reveals a normal prostate, ejaculatory ducts, and dilated seminal vesicles. The next step is:
A: ejaculatory duct cannulation.
B: testis biopsy.
C: vasography.
D: seminal vesicle aspiration.
E: renal ultrasound.
Answer= D.
The differential diagnosis of low ejaculate volume azoospermia is ejaculatory duct obstruction, hypogonadism, vasal agenesis, ejaculatory failure, and testicular failure. Hypogonadism was excluded by a normal testosterone level and the patient has palpable vasa. Retrograde ejaculation is not present because no sperm are in the post-ejaculate urine. This patient has either testicular failure or anobstruction of the ejaculatory ducts. Seminal vesicle aspiration under transrectal ultrasound guidance will reveal numerous sperm if obstruction is present and is the least invasive method to diagnose this treatable lesion. Ejaculatory duct cannulation is difficult and thus may not diagnose the problem.

27. A 69-year-old man undergoes complete resection of a micropapillary TCC of the bladder with superficial invasion of the lamina propria (T1). Muscularis propria is present and uninvolved; upper tract imaging is normal. The next step is:
A: surveillance with cystoscopy and radiographic imaging.
B: induction and maintenance Mitomycin C.
C: induction and maintenance BCG.
D: radical cystectomy.
E: neoadjuvant chemotherapy and radical cystectomy.
Answer= D.
Micropapillary bladder carcinoma is a rare variant of urothelial carcinoma. As opposed to the standard form of urothelial carcinoma, intravesical BCG therapy appears to be ineffective against micropapillary variant, and therefore restaging TURBT would not change the management. Recent results suggest that the optimal treatment strategy for nonmuscle invasive micropapillary urothelial carcinoma is radical cystectomy performed before progression.

28. A 40-year-old woman complains of headaches, photophobia, and urinary incontinence. Physical examination reveals lax anal tone and sacral anesthesia. Urinalysis shows greater than 10 RBC/hpf. Urodynamics demonstrates detrusor overactivity. An MRI scan reveals several lesions consistent with hemangiomas within the spinal cord. The most likely diagnosis is:
A: lipomeningocele.
B: tuberous sclerosis.
C: VHL disease.
D: diabetes mellitus.
E: adult polycystic kidney disease.
Answer= C.
Forty-four percent of carriers of VHL disease have central nervous system lesions. VHL disease is often associated with headaches and papillary edema due to hemangioblastomas of the cerebellum. In addition, renal tumors are associated with microscopic hematuria. Spinal hemangioblastomas can occur in 24% of patients and are suspected in this individual as a cause for her neurogenic bladder.

29. A 20-year-old man has recurrent gross hematuria and left flank pain related to exercise. Urinalysis reveals microhematuria, RBC casts and 2+ proteinuria. Renal ultrasound is normal. The study most likely to be diagnostic is:
A: CT urogram.
B: diuretic renography.
C: renal angiography.
D: ureteroscopy.
E: renal biopsy.
Answer= E.
Recurrent gross hematuria in young adults occurring after an upper respiratory infection or exercise is the classic presentation of IgA glomerulonephritis (Berger's disease). Back pain and renal colic due to clots may be associated with the hematuria can persist for days or weeks and may recur. Though the course is chronic, young patients generally have a good prognosis. Renal insufficiency develops in approximately 25% of patients, a poor prognosis is more likely in those with older age, heavy proteinuria, hypertension or abnormal renal function at presentation. The pathology evident on renal biopsy is proliferative and confined mostly to mesangial cells. These changes are usually limited to either some glomeruli or lobular segments of a glomerulus. Though deposits of IgA and IgG may be present on biopsy, these findings are not pathognomonic of the disease as mesangial deposits are found in other forms of glomerulonephritis. Renal imaging or endoscopic intervention is not indicated.

30. A 58-year-old year old asymptomatic man has a PSA of 2.4 ng/ml and a normal DRE. He is currently taking finasteride 1 mg every day to prevent hair loss. The next step is:
A: repeat PSA in one year.
B: repeat PSA in six months.
C: obtain free/total PSA ratio.
D: stop finasteride and repeat PSA in four months.
E: 12-core transrectal prostate needle biopsy.
Answer= E.
Studies have shown that finasteride 1 mg PO qd has a similar effect on PSA levels as finasteride 5 mg PO qd. Therefore, the PSA must be adjusted by a factor of 2 to get the true value. In this case, the adjusted PSA is 4.8 ng/ml. Therefore, the PSA is elevated and the patient should undergo a prostate needle biopsy. Repeat PSA in 6 or 12 months is not appropriate and may result in a delay in diagnosis. Free/total PSA ratio likely will not add much additional information, as total PSA is above the threshold for biopsy. Stopping finasteride and repeating PSA again may result in delay of diagnosis.

31. A 43-year-old woman has a 3 cm vesicovaginal fistula on the posterior bladder wall 2 cm above the trigone three years

following pelvic XRT for cervical cancer. CT urogram demonstrates normal upper urinary tracts without evidence of recurrent disease. The next step is:

A: bladder biopsy.
B: bilateral percutaneous nephrostomies.
C: immediate transvaginal repair with gracilis interposition.
D: immediate transabdominal repair with omental interposition.
E: delayed transabdominal repair with omental interposition.
Answer= A.

Although less common with improved radiation techniques, radiation-induced fistulas are commonly associated with persistent or recurrent cervical cancer. Fistulas may occur during or shortly following XRT as a result of tumor necrosis in the wall of the vagina or bladder. Fistulas that develop one or more years following XRT are attributed to radiation induced endarteritis obliterans with subsequent necrosis of the vaginal and bladder wall. The most important aspect in the management of a patient with a fistula following XRT is to rule out recurrent cervical cancer. Locally recurrent cervical cancer following definitive XRT is associated with poor survival despite aggressive multimodal management. Fistula repair would not be indicated in the setting of recurrent disease.

32. A 26-year-old woman who is 12 weeks pregnant has a sudden onset of frequency, urgency, and dysuria. She is severely allergic to penicillin. The best antibiotic is:

A: cephalexin.
B: tetracycline.
C: trimethoprim/sulfamethoxazole.
D: ciprofloxacin.
E: nitrofurantoin.
Answer= E.

Penicillins have proven to be the safest antibiotics for use during pregnancy. However if the patient is allergic to penicillins, they (and the cephalosporins) should not be used. Nitrofurantoin is usually safe but there is a small risk of maternal neuropathy (with long term use) and hemolysis in the fetus with relative G6PD deficiency. Trimethoprim/sulfamethoxazole is best avoided because folic acid antagonists are known teratogens. Tetracycline is contraindicated because of the adverse effects on the mother (hepatotoxicity) and fetus (tooth discoloration and dysplasia). Ciprofloxacin would be contraindicated because of its adverse effects on developing cartilage.

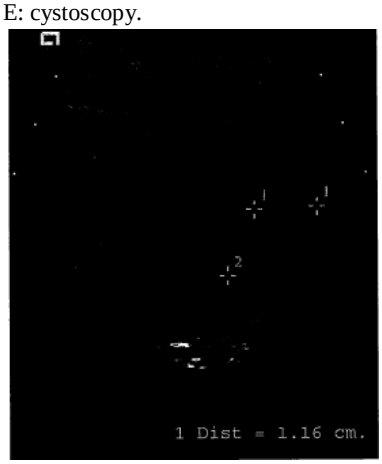
33. A 61-year-old man had a radical prostatectomy for pT2N0 Gleason 6 disease with negative margins five years ago. His initial PSA was undetectable and remained so until three years after surgery when it was first noted to be 0.08 ng/ml. One year later, his PSA was 0.1 ng/ml and it is now 0.12 ng/ml. The next step is:

A: repeat PSA in three to six months.
B: biopsy of the prostatic bed.
C: bone scan.
D: salvage pelvic radiation.
E: LH-RH agonist therapy.
Answer= A.

This patient has a detectable PSA after radical prostatectomy. This is a difficult and controversial topic. Studies have shown that many patients who experience biochemical recurrence after radical prostatectomy never experience clinical symptoms and die of non-prostate cancer related causes. There are certain predictors that allow patients with clinically meaningful recurrences to be differentiated from those who do not require immediate intervention. Specifically, PSA doubling time and Gleason score at the time of prostatectomy, in addition to margin state and pathologic stage, are important predictors of both biochemical and clinical recurrence. In this case, the patient has a low PSA with a long doubling time. In fact, many urologists would not consider this a clinical recurrence. They feel that a biochemical recurrence after radical prostatectomy should be defined as a PSA > 0.2 or 0.4 ng/ml. In addition, there are reports of benign tissue left at the apex causing small rises in PSA that often present like this case. Given the slow doubling time, low Gleason score and favorable pathologic stage, the PSA should continue to be followed, albeit more closely and intervention should be reserved until the PSA doubling time shortens or the total PSA rises to a level unacceptable to the provider and patient. Biopsy of the prostatic bed is not appropriate, as this cannot conclusively rule-out the presence of recurrence and is associated with some morbidity. Bone and/or PET scan add little to the work-up, as it is highly unlikely that there is radiologically measurable metastatic disease at this PSA level. Intervention with either pelvic radiation or hormones should be reserved, as discussed earlier.

34. A nine-year-old boy has urinary frequency and diurnal urinary incontinence without a history of urinary infection. Renal ultrasound is normal. An ultrasound of the bladder is shown. The next step is:

A: observation.
B: behavioral modification.
C: VCUG.
D: oxybutynin.
E: cystoscopy.



Answer= C.

Persistent voiding dysfunction with urgency, frequency, and diurnal urinary incontinence in this age group warrants screening with ultrasound. This image shows a diffusely thickened bladder with the bladder wall measuring > 5 mm (the upper limits of normal). This is a warning sign for outlet obstruction due to either an anatomic abnormality, neurogenic or non-neurogenic cause. This finding cannot be ignored. Cystoscopy can provide evidence for anatomic obstruction but would not be the recommended next step. The child should undergo a VCUG to rule-out the presence of valves. Observation, behavioral modification, and oxybutynin could be considered first in patients with minimal to mild bladder wall thickening since some degree of bladder wall hypertrophy can result from dysfunctional elimination. However, the degree of bladder wall thickening in this patient is greater than one would expect from dysfunctional elimination alone.

35. A 46-year-old woman with autosomal dominant polycystic kidney disease has mild flank pain, dysuria, urinary frequency, hematuria, and pyuria. Her temperature is 38.1°C. The serum creatinine is 1.8 mg/dl. An ultrasound shows a 4 cm cyst in the left kidney filled with echogenic shadows. Urine culture is negative. The next step is:

A: cyst aspiration.
B: open renal cystectomy.
C: ciprofloxacin.
D: ampicillin and gentamicin.
E: laparoscopic cyst marsupialization.
Answer= C.

The course of adult polycystic disease is often complicated by flank pain, hematuria, nephrolithiasis and urinary tract infections. Infected cysts are a major problem because they are difficult to treat and may progress to intrarenal and perinephric abscesses. Fifty to 75% of patients with polycystic disease, mainly females, are said to develop UTIs during the course of their illness. Renal cysts do not communicate with the collecting system; therefore urine cultures may be negative. If the patient is generally well, antimicrobial therapy is the best first step. However, it may be ineffective because of choice of antibiotic which have poor penetration in the diseased kidneys. Most antibiotics, including aminoglycosides, penicillins, cephalosporins and macrolides penetrate polycystic renal cysts poorly. Drugs that penetrate cysts reasonably well include chloramphenicol, trimethoprim-sulfamethoxazole, clindamycin and ciprofloxacin. In this particular case where the patient is not toxic, oral treatment with ciprofloxacin and close observation is warranted. If the patient does not respond and/or her fever persists while on ciprofloxacin, percutaneous aspiration or drainage of the cyst would be indicated.

36. A 60-year-old man has Gleason 7, pT3aN0M0 adenocarcinoma of the prostate with a positive surgical margin after radical prostatectomy. His PSA is 0.2 ng/ml 16 weeks after surgery. He has mild but persistent stress urinary incontinence. The next step is:

A: observation.
B: high-dose bicalutamide.
C: leuprolide acetate.
D: postoperative radiation.
E: radiation if PSA values reach >1 ng/ml.
Answer= D.

The Southwest Oncology Group (SWOG) trial 8794 demonstrated that adjuvant radiation reduces the risk of biochemical treatment failure by 50% over radical prostatectomy alone. Four hundred thirty-one subjects with pathologically advanced prostate cancer (extraprostatic extension, positive surgical margins, or seminal vesicle invasion) were randomly assigned to postoperative radiotherapy or observation. Three hundred seventy-four eligible patients had a median follow-up of 10.2 years. For patients with a postsurgical PSA of 0.2 ng/mL, radiation was associated with reductions in the 10-year risk of biochemical treatment failure (72% to 42%), local failures (20% to 7%), and distant failures (12% to 4%). Moreover, radiation to the prostate bed reduced the risk of metastatic disease and biochemical failure at all postsurgical PSA levels. It is advisable to wait at least 3-4 months after surgery to allow complete wound healing and return of urinary continence. If salvage radiotherapy is planned, it should be initiated before the PSA level rises much above 0.5 ng/ml. Although some patients with PSA recurrence are better managed with hormone therapy for PSA relapse, the long-term side effects would make adjuvant radiation the best choice particularly at this early post-operative stage.

37. In hypogonadal men, the agent which improves the results of nocturnal penile tumescence testing but does not affect erection in response to erotic films is:

A: testosterone.
B: L-Dopa.
C: sildenafil.
D: yohimbine.
E: bromocriptine.
Answer= A.

Androgen replacement in hypogonadal men does increase sexual activity and interest. The relationship between androgen replacement and penile erection is not straightforward. When evaluated with nocturnal penile tumescence testing, hypogonadal men demonstrate decreased erectile activity and this abnormality is corrected with testosterone replacement. Laboratory tested erectile responses to erotic films, however, are usually normal in hypogonadal men. These observations are consistent with the conclusion that the major effect of testosterone therapy on sexual function is to enhance libido and not to directly improve penile erection in a sexual setting. None of the other drugs are known to exert these effects.

38. A 42-year-old man is undergoing laparotomy for intraabdominal injuries and bladder rupture. Bleeding is noted in the perivesical area. After repair of the bladder rupture, attempts at suture ligation do not stop the persistent bleeding. Multiple blood transfusions are given and his core temperature is 35.5°C. The next step is:

A: intraoperative arteriography.
B: ligation of the hypogastric arteries.
C: I.V. aminocaproic acid.
D: close the abdomen and place patient in anti-shock trousers (MAST).
E: pack the pelvis and close the abdomen.
Answer= E.

Most major bleeding from the pelvis following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization in the radiographic suite. Ligation of hypogastric arteries or veins is seldom helpful in management because bleeding occurs from multiple pelvic veins. On-table arteriography is technically difficult, time consuming, and provides poor images and should therefore not be used. The use of a MAST suit in such cases has not been proven to be effective. Bleeding is due to trauma and unlikely to respond to medical therapy.

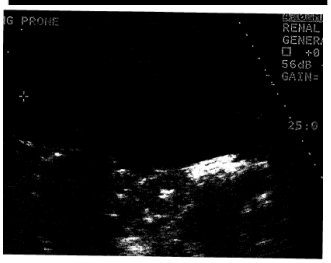
39. A 53-year-old man with a 2 cm distal penile cancer undergoes partial penectomy revealing low grade T1 squamous cell carcinoma with tumor seen 7 mm from the final surgical margin. The next step is:

A: surveillance.
B: 5-fluorouracil cream.
C: XRT to the penile stump.
D: Moh's surgery of the penile stump.
E: additional penile resection to achieve a 2 cm margin.
Answer= A.

An increasing amount of data has accumulated to suggest that a 2 cm margin may not be necessary in all patients undergoing penile cancer resection. Two specific studies have challenged this surgical issue. In a prospective histologic analysis of 64 penectomy specimens, Agrawal and associates concluded that tumor grade highly correlated with microscopic tumor spread. The maximum proximal histologic extent was 5 mm for grade 1 and grade 2 tumors and 10 mm for grade 3 tumors. After performing a retrospective pathologic review of 12 penectomy specimens, Hoffman and colleagues also found seven patients with disease of pathologic stage T1 or greater with microscopic margins measuring less than 10 mm. None of these patients had disease recurrence at a mean follow-up of 32.4 months. The most important factor in determining risk of residual disease in patients with less than a 2 cm margin is tumor grade. This patient is therefore at low risk of recurrence and should be monitored accordingly.

40. A four-year-old girl undergoes a left cross trigonal ureteroneocystostomy with ureteral tapering for grade 5 VUR. The preoperative VCUG and a left renal ultrasound six weeks following surgery are shown. The next steps are to continue prophylactic antibiotics and:

A: repeat ultrasound in four weeks.
B: MAG-3 renal scan.
C: percutaneous nephrostomy.
D: ureteral stent placement.
E: revise ureteroneocystostomy.



Answer= A.

There is considerable postoperative edema at the level of the bladder four to six weeks following a tapered ureteroneocystostomy. In addition, high grade VUR results in diminished compliance of the ureter and renal pelvis. Prior to surgery, it is common to see a normal upper tract on renal ultrasound or only minimal hydroureteronephrosis. After surgery the combination of the resistance from the ureteral tunnel and operative edema can unmask the poor compliance of the ureter and kidney resulting in the appearance of significant hydroureteronephrosis. This should not be interpreted as obstruction. When evaluating the immediate post operative ultrasound it is necessary to put it into perspective with the initial degree of ureteral and renal dilation noted on the VCUG and not directly compare it to the preoperative renal ultrasound. In general, there is no major concern for obstruction if the degree of hydronephrosis on the post operative ultrasound correlates with the degree of dilation of the collecting system seen on the preoperative VCUG. Increased dilation due to edema and a poorly compliant system will begin to improve after six weeks. If this dilation persists after several months, a MAG 3 renal scan should be performed to aid in determining if post operative obstruction exists. All of the other options would be too premature at this point in time.

41. Cystine stones form primarily as a consequence of:

A: increased concentration of urinary cystine.
B: a deficiency of substances other than cystine that inhibit crystal growth.
C: an excess of substances that promote crystal growth.
D: increased binding of cystine by matrix (mucoproteins).
E: excessive urinary acidity.
Answer= A.

Cystine stone formation is the only type of metabolic stone disease which can be determined specifically based on the urinary concentration of a specific ionic constituent. In most patients, once the urinary concentration of cystine increases to more than 200 mg of cystine per liter of urine, cystine crystals will precipitate out of solution with subsequent formation of cystine calculi. If one can reduce the cystine concentration below 200 mg per liter, either with increased urinary volume or reductions in cystine excretion, cystine stone disease can be prevented. However, a high percentage of patients with cystine stone disease will also have concurrent metabolic abnormalities and appropriate metabolic evaluation with subsequent treatment should also be instituted.

42. A 12-year-old boy with a history of CAH has painful bilateral testicular masses confirmed on ultrasound. The next step is:

A: antibiotics.
B: increase corticosteroids.
C: fine needle aspiration of testis.
D: bilateral partial orchiectomy.
E: abdominal pelvic CT scan.
Answer= B.

The association between testicular tumors/nodules and CAH has been recognized for many years and are defined as testicular adrenal rest tumors (TART). Tumors are considered to be aberrant adrenal tissue that has descended with the testes and has become hyperplastic due to ACTH stimulation. The recommended treatment of TART consists of increasing the glucocorticoid dose to suppress ACTH secretions. Biopsy and or removal is not indicated unless increasing medical therapy fails. Antibiotics and abdominal pelvic CT scan are not indicated.

43. A 70-year-old man with metastatic colon cancer and indwelling ureteral stents develops profuse gross hematuria. Arteriography demonstrates a fistula between the right common iliac artery and ureter. He is hemodynamically stable. The next step is:

A: stent removal.
B: percutaneous nephrostomy.
C: embolize common iliac artery.
D: open surgical repair with ligation of the common iliac artery.
E: endovascular graft placement.
Answer= E.

The majority of arterial ureteral fistulas occur in patients who have had extensive pelvic surgery, XRT, and indwelling ureteral stents. Most fistulas involve the common iliac artery but they can also occur in the hypogastric artery. Patients can experience high volume bleeding resulting in hemodynamic instability. Emergency arteriography should be performed if this complication is suspected. While embolization of the common iliac artery will control hemorrhage, a femoral to femoral artery bypass is required to provide adequate circulation to the ipsilateral lower extremity. Placement of an endovascular stented graft or an autologous vein covered stent are less invasive options obviating the need for vascular reconstructive surgery in a patient with limited life expectancy and are the preferred treatment method. The ureteral stent should be removed and a percutaneous nephrostomy placed after this procedure to limit recurrent fistula formation.

44. The optimal tissue for early coverage of the perineum following an avulsion skin injury is a(n):

A: island skin flap.
B: musculocutaneous flap.
C: full thickness skin graft.
D: split thickness skin graft.
E: dermal graft.
Answer= D.

A split thickness skin graft takes much more readily than a full thickness skin graft or a dermal graft because capillary ingrowth into the graft is more rapid. Skin flaps and musculocutaneous flaps have no role in the acute management of avulsion injuries.

45. An obese 11-year-old girl with spina bifida is undergoing bladder reconstruction. The appendix is not suitable for construction of a catheterizable abdominal channel. The best channel option is:

A: tunneled reconfigured ileum (Monti).
B: tunneled tapered ileum.
C: intussuscepted ileum.
D: incontinent ileovesicostomy.
E: tubularized detrusor flap.
Answer= A.

The flap valve or Mitrofanoff principle gives excellent continence with ease of catheterization in most cases. When the appendix is not

available, reconfigured ileum (Monti) is preferred because it gives a uniform tube with a small mesentery in the center that facilitates tunneling into the bladder and creation of an abdominal stoma. Tapered ileum leaves a bulky mesentery along the length of the channel and the mucosal folds are oriented transversely potentially making catheterization difficult. An ileal conduit is not ideal long-term management in children because of long-term upper tract deterioration. An incontinent ileovesicostomy requires an appliance has been documented to be problematic in obese patients. The bladder is likely thickened and small; the chance of a detrusor flap reaching the abdominal wall without being complicated by stomal stenosis is small. Intussuscepted ileum historically has a high failure rate with regards to stomal incontinence.

46. The most common acid-base disturbance that occurs in a patient with an ileal conduit urinary diversion is:
A: hyperkalemic, hyperchloremic, metabolic acidosis.
B: hyponatremic, hypochloremic, metabolic acidosis.
C: hypochloremic, hypokalemic, metabolic alkalosis.
D: hypokalemic, hyperchloremic, metabolic acidosis.
E: hyponatremic, hypochloremic, metabolic alkalosis.
Answer= D.
In the setting of an ileal conduit urinary diversion, ammonium absorption occurs with chloride in exchange for hydrogen and bicarbonate ions, and may be accompanied by renal potassium wasting. This results in a hypokalemic hyperchloremic metabolic acidosis. Hyponatremic hypochloremic hyperkalemic metabolic acidosis occurs with the use of jejunum due to sodium chloride loss with increased reabsorption of potassium and hydrogen ions. Use of stomach may lead to hypochloremic hypokalemic metabolic alkalosis due to hydrogen and chloride loss with renal oversecretion of potassium to compensate for proton loss.

47. The physiologic change during the third trimester of pregnancy that offers protection against kidney stone formation is:
A: increased ureteral peristalsis.
B: increased ureteral dilation.
C: increased urinary citrate.
D: decreased urinary calcium.
E: decreased urinary uric acid.
Answer= C.
Although ureteral peristalsis does increase, and the ureters do dilate during pregnancy, neither of these physiologic changes are associated with decreased stone formation. During the third trimester of pregnancy, urinary citrate levels are known to increase dramatically. Urinary citrate is a potent inhibitor of calcium oxalate crystallization, and should help protect against stone formation. Neither hypocalciuria nor hypouricosuria are routinely associated with pregnancy.

48. A five-year-old boy has an ectopic ureter associated with a nonfunctional, hydronephrotic, upper pole segment of a duplex system. He undergoes an upper pole partial nephrectomy. The key step in the surgical dissection is:
A: mobilization of the lower pole of the kidney.
B: mobilization of the adrenal gland.
C: reduction of the size of the renal pelvis.
D: complete removal of the distal ureter.
E: dissection of the ureter from the renal hilum.
Answer= E.
The critical step in patients undergoing upper pole, partial nephrectomy, to remove a non functional segment, is dissecting the abnormal ureter from the renal hilum so as not to cause vascular injury to the normal lower pole. The adrenal gland should be left in situ and not disturbed. The distal ureter especially in a male is rarely an issue if not completely removed. The lower pole of the kidney can be mobilized for exposure but is not typically necessary. Reduction of the renal pelvis is not an issue.

49. A 65-year-old man cannot void following an abdominoperineal resection for rectal cancer. He is treated with CIC, and is continent between catheterizations. Three months later he still cannot void and is re- evaluated. He has a normal creatinine and PSA. Cystoscopy reveals occlusive lateral prostatic lobes and a median lobe which projects onto the trigone. A combined CMG-EMG demonstrates a slight decrease in compliance, no definite detrusor contraction is seen. His EMG never silences. Preferred management is:
A: continue CIC.
B: bethanechol.
C: tamsulosin.
D: TUIP.
E: TURP.
Answer= A.
Patients who have undergone an abdominoperineal resection are at risk for developing denervation of not only their bladder but also the urethral sphincter mechanisms. Denervation of the smooth muscle in the area of the bladder neck and membranous urethra places these patients at considerable risk for incontinence following transurethral resection of the prostate. Because of the possibility of urinary incontinence following TURP or TUIP, the preferred management of this patient is continued CIC.Bethanechol is not clinically effective in the doses that can be administered orally. Tamsulosin will not be effective in the absence of effective detrusor contractions.

50. A six-year-old boy has severe suprapubic pain with urgency, frequency, dysuria, and fever. Urinalysis and culture are negative after a course of oral antibiotics. WBC count is 12,000/mcl. Renal ultrasound and VCUG are normal. Pelvic CT images are shown. The next step is:
A: I.V. antibiotics and observation.
B: percutaneous drainage and culture.
C: cystoscopy.
D: percutaneous biopsy.
E: partial cystectomy.

Answer= B.
The CT is consistent with an infected urachal cyst. Broad spectrum antibiotics without a culture is not prudent. This is not a tumor, therefore biopsy is unnecessary. Excision is definitive therapy but is most appropriate after drainage and treatment of an abscess. Endoscopy may reveal some inflammation at the dome of the bladder but will not be therapeutic or diagnostic.

51. An eight-year-old 30 kg boy with spina bifida has an appendicocecostomy for the antegrade continence enema (ACE) procedure. Postoperatively, he has persistent fecal incontinence and severe constipation with little to no fecal response within

two hours of placing 3000 cc of water into the ACE stoma. The next step is:
A: add 1/4 cup of baby shampoo to the colonic irrigations. B: add a bottle of magnesium citrate to the bowel irrigations.
C: change to polyethylene glycol colonic irrigations.
D: convert to a descending colon stoma or tube for the ACE.
E: diverting colostomy.
Answer= D.
Two major problems are found to exist with cecal or colon stomas 1) stomal stenosis will develop in up to 30% of patients; this can be managed with either stomal revision or placement of a cecostomy tube through the stenotic channel. 2) washout failure, defined as failure to pass little or any of the enema from the rectum within one to two hours following instillation of irrigation fluid. Approximately 5-10% of patients with washout failure will need a diverting colostomy. The maximum amount of tap water that can be used for ACE irrigations before alterations in serum sodium will occur can be calculated by the formula of body weight (kg) x 0.035 L/kg for example in this 30 kg child. 30 kg x 0.035 liters/kg = 1.05 liters maximum volume. The physician may use water volumes higher than what is calculated but the risk of hyponatremia rises with higher volumes, the onset of hyponatremia and the risk of water intoxication will of course be dependent upon the type of fluid instilled and dwell time within the bowel. If water volumes greater than calculations are used the patients serum electrolytes should be checked at monthly intervals until they can be documented to be stable, after that time electrolytes can be checked with routine follow-up. Alternatives to significantly increasing the volume of calculated instilled fluid involve changing irrigant fluid to polyethylene glycol irrigations, long term use of this substance is however associated with the intermittent development of C. difficile colitis. Magnesium citrate or phosphate enemas may be instilled in the ACE prior to washout to decrease irrigant volume however these maneuvers have been associated with resultant hypermagnesemia, hyperphosphatemia and hypocalcemia. In patients with washout failure following high volume irrigations of a right colonic ACE altering the stomal site/colonic tube to the left colon has been documented to reduce the volume of irrigant; result in successful fecal continence and save the majority of these patients from the need for a diverting colostomy.

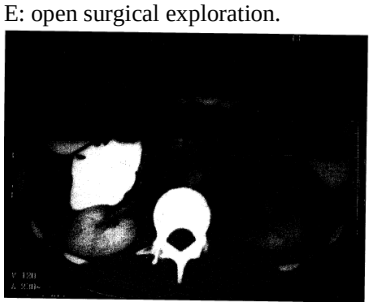
52. The most life-threatening electrolyte abnormality that develops during the diuretic phase of acute tubular necrosis is:
A: hyponatremia.
B: hypomagnesemia.
C: hypocalcemia.
D: hypokalemia.
E: hyperkalemia.
Answer= D.
During the massive urinary sodium losses occurring during the diuresis phase of acute tubular necrosis, potassium is also lost resulting in life-threatening hypokalemia. During diuresis the Na+/K+ pump is overwhelmed and exchange fails to occur.

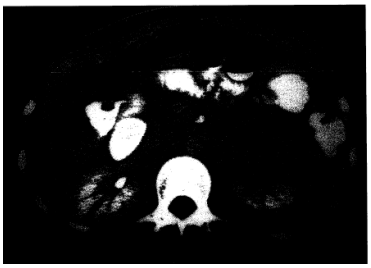
53. The stone composition most resistant to fragmentation with SWL therapy is:
A: calcium oxalate monohydrate.
B: calcium oxalate dihydrate.
C: hydroxyapatite.
D: uric acid.
E: struvite.
Answer= A.
The fragility of stones determines their ability to be fractured with therapies such as SWL. The fragility of a stone will affect the outcome of therapy. Calcium oxalate monohydrate, brushite and cystine stones have been shown to be the least fragile and are less likely to respond to therapy with SWL.

54. A 27-year-old man evaluated for infertility of nine months duration has a normal sperm count and motility, but sperm morphology reveals only round headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate sized left unilateral varicocele. His wife is 25-years-old, and has a normal evaluation. The next step is:
A: varicocele repair.
B: intrauterine insemination.
C: re-evaluation in three months.
D: in vitro fertilization.
E: ICSI.
Answer= E.
Observation is a reasonable choice in young couples with infertility of less than one year's duration. However, the finding of round headed sperm is consistent with absence of the acrosome and individuals with this finding are sterile. Standard intrauterine inseminations and in vitro fertilization are unsuccessful because the sperm cannot fertilize an egg without a normal acrosome. Varicocele repair will not improve the morphology. The only method that will induce a pregnancy using the patient's sperm is in vitro fertilization using intracytoplasmic sperm injection (ICSI). Even regular ICSI has resulted in low pregnancy rates. Current approaches combine assisted oocyte activation with ICSI. The alternative is donor insemination.

55. A 50-year-old man is scheduled for a living related renal transplant. He has a serum creatinine of 5.5 mg/dl and is not yet on dialysis. His noncontrast CT scan shows a 2 cm solid left renal mass. The next step is:
A: repeat CT scan with I.V. contrast.
B: radical nephrectomy and exclude patient from transplantation.
C: simultaneous radical nephrectomy and renal transplantation.
D: radical nephrectomy, transplant in two years if no recurrence.
E: partial nephrectomy, transplant in two years if no recurrence.
Answer= C.
Incidentally discovered small asymptomatic renal tumors do not mandate a waiting period prior to transplantation. Repeating the CT scan with contrast risks further nephrotoxic injury with preexisting borderline renal function, and will not change the management of the renal mass. Although partial nephrectomy may carry the advantage of preserving additional renal mass, this is not applicable to this patient. The appropriate management in this setting is simultaneous nephrectomy and transplantation.

56. A 12-year-old boy with blunt abdominal trauma has a CT scan that shows a left renal fracture with a small subcapsular hematoma. He is managed with observation. Six days after injury he has a temperature of 38.4°C and increased hematuria with clots. His hematocrit has decreased from 30 to 24 in the last day. The CT scan on day six is shown. The next step is:
A: observation.
B: retrograde ureterogram.
C: arteriogram.
D: percutaneous nephrostomy.
E: open surgical exploration.





Answer= C.

This child likely has a delayed bleed from a renal laceration. The CT demonstrates devitalized areas of the kidney with a collection of blood and urine. This is best managed by embolization after confirmation by arteriogram. Open surgery will more likely result in nephrectomy or heminephrectomy. Percutaneousnephrostomy or retrograde ureterogram will not treat the continued bleeding. A retrograde study would be indicated if one were suspecting a pelvic tear or a UPJ disruption because of medial extravasation.

57. An eight-year-old boy with acute lymphocytic leukemia undergoes chemotherapy. His urine output during the last 24 hours is 50 ml. Serum creatinine is 2.1 mg/dl, BUN 40 mg/dl, and uric acid 8.5 mg/dl. Renal ultrasound demonstrates normal sized kidneys with no hydronephrosis and increased echogenicity. The next step is:

A: isotope renogram.
B: renal biopsy.
C: retrograde pyelography.
D: allopurinol.
E: hydration and urinary alkalinization.
Answer= E.

The patient has tumor lysis syndrome and early acute oliguric renal failure secondary to uric acid nephropathy. The normal ultrasound without hydronephrosis rules out obstruction as the cause of the renal failure. Initial management is hydration, urinary alkalinization followed by reduction of uric acid with allopurinol. If that fails, hemodialysis may be necessary. Isotope renogram is not indicated. Renal biopsy, to rule out interstitial tumor infiltration, is also not indicated since the circumstance strongly suggests tumor lysis issues. The patient has no ureteral obstruction and, thus, cystoscopy and retrograde pyelogram with stent placement would not be helpful.

58. A 28-year-old woman underwent kidney transplantation two weeks ago. Her immunosuppression regimen consists of tacrolimus, prednisone, and mycophenolate mofetil. She exhibits tremors but no fevers. Physical exam reveals no significant tenderness over the transplant. Serum creatinine nadir was 1.1 mg/dl but is now 1.9 mg/dl. Urinalysis is negative, and ultrasonography shows no hydronephrosis or peritransplant collections. The next step is:

A: blood sugar level.
B: tacrolimus blood level.
C: urine culture.
D: CT scan of transplant kidney.
E: I.V. fluid bolus.
Answer= B.

Considerations for apparent early graft dysfunction include infection, renal allograft rejection, urinary or vascular obstruction, cyclosporine or tacrolimus nephrotoxicity, hyperglycemia, and dehydration. A screening work-up consisting of physical exam followed by basic laboratory tests and ultrasound are appropriate. In this case, the prominent physical exam finding of tremor suggests tacrolimus toxicity that can be further evaluated by determining the serum level of the immunosuppressant tacrolimus (calcineurin inhibitor). Mycophenolate mofetil is an antibiotic with immunosuppressive qualities. It is clinically indicated for cardiac and renal transplantation and the treatment of psoriasis and rheumatoid arthritis. Side effects of mycophenolate mofetil include anemia, leukopenia, thrombocytosis, GI bleeding, sepsis, lymphoma, skin cancer, and pulmonary fibrosis. It is not associated with a decrease in renal function. However, its use may result in elevation of tacrolimus and cyclosporin blood levels. The latter may interfere with renal graft function.

59. A 55-year-old man has lower extremity thrombophlebitis and is started on warfarin. Two weeks later, he experiences abdominal pain and has a blood pressure of 84/50 mmHg. His hemoglobin is 13.5 gm/dl and serum potassium 5.8 mEq/l. A CT scan demonstrates bilateral 4 cm adrenal masses. The next step is I.V. fluids and administration of:

A: dexamethasone.
B: fresh frozen plasma.
C: Kayexalate.
D: fluorohydrocortisone.
E: Vitamin K.
Answer= A.

This patient has adrenal insufficiency secondary to bilateral adrenal hemorrhage. This can occur in anticoagulated patients, typically during the first three weeks of therapy. The initial therapy should be administration of I.V. fluids and glucocorticoid therapy. Fresh frozen plasma is not acutely indicated with an adequate hemoglobin level. Kayexalate will help lower a high potassium but not the hypotension from adrenal steroid deficiency. Chronic but not acute adrenal insufficiency is treated with fluorohydrocortisone. Vitamin K will help restore clotting factors depleted by warfarin therapy but is not the initial therapy for this patient.

60. Human papilloma virus is best prevented in a 15-year-old man with use of:

A: quadrivalent recombinant vaccine.
B: condoms.
C: oral acyclovir.
D: post-coital acetic acid.
E: topical acyclovir.
Answer= B.

Quadrivalent Human Papillomavirus vaccine immunizes against types 6, 11, 16 and 18. Types 16 and 18 are associated with 70% of cervical cancer cases. Types 6, 11, 16, and 18 are associated with 90% of cases of genital warts. The vaccine has only been tested in females and is indicated in females age 9-26 for the prevention of cervical cancer, precancerous lesions and genital warts caused by these subtypes. There has been no testing of vaccine efficacy in males.

61. An 80-year-old man has urinary retention. He has bilateral pitting edema, an elevated jugular venous pulse, and a blood pressure of 200/120 mm Hg. His creatinine is 4.0 mg/dl. The serum K+ and Na+ are normal. An ultrasound shows a very distended bladder and bilateral pelvicaliectasis. Three liters of urine is obtained from his bladder when he is catheterized. Urine output over the next two hours is 700 ml. The next step is:

A: serial creatinine measurement.
B: replace output ml per ml with D5 1/2 NS.
C: monitor fluid intake and output every four hours.
D: monitor postural BP for two hours.
E: spot check urine for osmolality, sodium, and potassium.
Answer= E.

All patients with an output greater than 200 ml/hr have postobstructive diuresis and should be monitored. High risk patients with chronic obstruction, edema, congestive heart failure, hypertension, weight gain and azotemia are most likely to exhibit a postobstructive diuresis after the release of obstruction. In the high risk patient a spot check urine for osmolality, sodium and potassium will allow for the determination of the type of postobstructive diuresis and will guide in further management. High risk patients

should have vital signs, including postural blood pressure and output measured hourly. D5 1/2 NS is an appropriate replacement fluid in the patient with an elevated BUN and creatinine but generally replacement is given at half of the previous hours urine output.

62. Hypertension secondary to acute unilateral urinary obstruction is most likely:
A: found in patients with a solitary kidney.
B: associated with transient hyperreninemia.
C: persistent after relieving the obstruction.
D: associated with a demonstrable renovascular lesion.
E: due to sodium and water retention.
Answer= B.
Renin-mediated hypertension sometimes occurs in acute unilateral renal obstruction and may present a clinical picture suggestive of a renovascular etiology; however, angiographic studies do not show a vascular lesion. A transient hyperreninemia initiates the hypertension and the hypertension is probably sustained by complex volume-vasoconstricting abnormalities that are dependent on the duration of the obstruction and the presence of a contralateral normal kidney. The abnormalities are corrected by relieving the obstruction and the blood pressure in turn reverts to normal. This type of hypertension usually does not occur in a solitary hydronephrotic kidney or bilateral hydronephrosis because of compromised renal function with lowering of renin levels due to impairment of overall sodium and water excretion.

63. A 52-year-old man has SWL of a 22 mm left renal pelvic stone. A 3 cm steinstrasse is found on a one week post-treatment radiograph. He is asymptomatic, even though a renal ultrasound examination shows moderate hydronephrosis. He returns in one month with a fever of 39.5°C. CT urogram shows markedly delayed function of his left kidney. This problem should be managed with antibiotics and:
A: medical expulsive therapy.
B: percutaneous nephrostomy.
C: ureteral stent.
D: ureteroscopic extraction of the fragments.
E: SWL of the leading fragments.
Answer= B.
This patient has steinstrasse and appears to be septic, thus, his upper tract should be drained. Placement of a percutaneous nephrostomy tube is an option that will accomplish this. The fragments will pass spontaneously with a nephrostomy tube in place in upwards of 70% of cases, and thereby avoid ureteroscopic extraction or SWL of the ureteral fragments. Medical expulsive therapy will probably not be effective in this case.

64. A 24-year-old sexually active homosexual man has a solitary erythematous nodule on the penile shaft. He does not have a urethral discharge. Purulent material is expressed from the nodule and culture on Thayer-Martin medium reveals oxidase positive colonies. The most likely diagnosis is:
A: primary syphilis.
B: gonorrhea.
C: chancroid.
D: lymphogranuloma venereum.
E: Kaposi's sarcoma.
Answer= B.
This patient's presentation is lacking in the usual signs and symptoms of gonorrhea, but an oxidase positive culture on Thayer-Martin medium is diagnostic of Neisseria gonorrhea. Thayer-Martin media contain various antibiotics (vancomycin, colistin and nystatin) and specific growth-promoting agents with hemoglobin (sheep's blood) that inhibits or totally suppresses the growth of accompanying bacterial flora while allowing pathogenic Neisseria species to grow normally. Diagnosis of primary syphilis is by darkfield microscopy and direct fluorescence antibody (DFA) test of specimens obtained from the lesion. Alternatively, nontreponemal serologic testing with rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL) can be used to diagnosis primary syphilis. Chancroid is caused by Haemophilus ducreyi and this organism is fastidious and difficult to culture. Diagnosis is usually made by gram stain showing gram negative streptobacilli. Lymphogranuloma venereum (LGV) is caused by Chlamydia trachomatis types L1, L2 and L3. The diagnosis of LGV is primarily clinical as cultures are positive only 30-50% of the time from the cutaneous lesions: and accessory glandular infection may be the only manifestations of active gonorrhea. Kaposi's sarcoma is caused by HIV.

65. The risk of serious illness or death to a surgeon who suffers a needle stick during the course of surgery is greatest if the patient:
A: has asymptomatic untreated HIV infection.
B: has a history of clinical hepatitis.
C: has AIDS treated with AZT.
D: is hepatitis B surface antigen positive.
E: is hepatitis A positive.
Answer= D.
The risk of hepatitis B virus (HBV) developing into clinical infection after a needlestick exposure to hepatitis B surface antigen positive blood ranges from 7% to 30%. Between 5% and 10% of persons with acute HBV infection become chronic carriers; 15% to 25% of carriers will eventually die of livercancer or cirrhosis. The risk of HIV infection after a needlestick exposure to HIV-infected blood is, on the average, approximately 0.4%. Thus, the death rate may be slightly higher with hepatitis exposure, and the morbidity rate is far higher.

66. A 50-year-old man who is receiving exogenous testosterone for treatment of erectile dysfunction will have:
A: decreased semen volume.
B: decreased sperm count.
C: increased FSH.
D: increased LH.
E: increased prolactin.
Answer= B.
Exogenous testosterone will suppress pituitary production of LH and FSH. Prolactin levels will be unaffected. Semen volume, which is dependent on circulating testosterone levels, should be unchanged or increased. However, intratesticular levels of testosterone will decrease, resulting in lower sperm production and decreased sperm concentration.

67. A 48-year-old man has a two-week history of low back pain and difficulty voiding. Physical examination reveals an absent bulbocavernosus reflex and loss of perineal sensation. MRI scan of the spine confirms an L4-L5 disc protrusion. The most likely distribution of his neural injury is:
A: parasympathetic alone.
B: sympathetic alone.
C: pudendal alone.
D: parasympathetic and pudendal.
E: sympathetic and pudendal.
Answer= D.
The clinical picture is consistent with cauda equina syndrome, which is associated with disc disease (severe central posterior disc protrusion) and other spinal canal pathologies that involve the L4-S2 region. Additional features of the presentation include loss of voluntary control of both anal and urethral sphincters and of sexual responsiveness. The most consistent urodynamic finding is that of a normally compliant areflexic bladder with either normal innervation or incomplete denervation of the perineal floor musculature. Disc

protrusions of the lumbar spine interfere with the parasympathetic and somatic innervation of the lower urinary tract, striated sphincter and other pelvic floor musculature, and afferentactivity from the bladder and affected somatic segments to the spinal cord.

68. Non-gonococcal urethritis not responsive to a full course of tetracycline should be treated with:
A: spectinomycin.
B: ceftriaxone.
C: doxycycline.
D: penicillin.
E: azithromycin.
Answer= E.
Nongonococcal urethritis caused by Chlamydia trachomatis or Ureaplasma urealyticum cannot be distinguished clinically, but either tetracycline or azithromycin is usually effective against both. Sexual partners should also be treated. If the signs and symptoms of urethritis do not improve with a tetracycline, infection with tetracycline-resistant U. urealyticum may be present; this usually responds to an azithromycin. Relapse may be due to reinfection by an untreated sexual partner, and the patient and all partners should be retreated. When C. trachomatis causes mucopurulent cervicitis, it usually responds to the same regimen of tetracycline or azithromycin used to treat urethritis.

69. A 45-year-old man with a history of hypertension and significant tobacco use is impotent one year following a crush injury to the pelvis. A penile arteriogram reveals unilateral focal occlusion of the internal pudendal artery. Treatment should be:
A: intracavernous vasoactive injections.
B: dorsal venous ligation.
C: percutaneous angioplasty.
D: arterial revascularization.
E: penile prosthesis.
Answer= A.
Percutaneous or surgical revascularization of the internal pudendal arteries is not indicated owing to the patient's age and associated atherosclerotic vascular disease secondary to smoking. There is no indication for venous ligation. Owing to the vascular disease, penile injections may not be successful but should be implemented prior to insertion of a penile prosthesis.

70. During inflatable penile prosthesis surgery, the device is inspected for proper inflation and deflation after corporotomy closure. At maximal cylinder inflation, the glans flops ventrally over the distal portion of the cylinders. The next step is:
A: complete procedure with cylinders deflated.
B: complete procedure with cylinders inflated.
C: crural plication.
D: fix the glans to the tunica dorsally at the distal ends of the corporal bodies.
E: reassess the corporal bodies for cylinder size.
Answer= E.
The description suggests an impending supersonic transport (SST) deformity which is a ventral chordee of the glans whereby the distal aspects of the cylinders inadequately extend distally under the glans creating a floppy appearance. The floppy appearance mimics the drooped nose of the Concorde, a supersonic transport. A likely basis for the problem is inadequate dilatation and sizing of the corporal spaces. If this is identified during prosthesis placement, the corporotomies should be reopened and the corporal bodies inspected to be sure proximal perforation has not occurred. Redilation and remeasurement of corporal bodies are then performed, and the same cylinders can usually be reinserted adding rear-tip extenders to achieve appropriate length. A distal corporal plication ("Ball procedure") is not generally required during initial prosthesis placement. The device should remain in the deflated position at the completion of surgery until the time of device activation and initiation of use to avoid the risks of an unexpanded cavity space for the reservoir (that is associated with autoinflation), penile pain and distal corporal perforation.

71. The enzyme deficiency that most commonly leads to genital ambiguity in a 46 XX individual with normal ovaries is:
A: 20,22-desmolase.
B: 17-hydroxylase.
C: 21-hydroxylase.
D: 3B-hydroxysteroid dehydrogenase.
E: 17B-hydroxysteroid dehydrogenase.
Answer= C.
A deficiency of 20,22-desmolase, 3B-hydroxysteroid dehydrogenase and 17-hydroxylase enzymes occur with congenital adrenal hyperplasia but rarely cause genital ambiguity in a 46 XX female. 17B-
hydroxysteroid dehydrogenase is primarily a testicular enzyme. A 21-hydroxylase deficiency will cause CAH in both sexes but in a 46 XX individual with ovaries it will lead to genital ambiguity. Only enzyme defects beyond the 17-hydroxyprogestone stage of steroid biosynthesis will produce excessive androgenic substances.

72. A 26-year-old sexually active man has a painful 1.0 cm solitary ulcer on the glans penis which is culture positive for H. ducreyi. The next step is:
A: doxycycline.
B: azithromycin.
C: benzathine penicillin G.
D: acyclovir.
E: ciprofloxacin.
Answer= B.
The patient's findings are classic for chancroid which is due to H. ducreyi. This is the most common sexually transmitted disease worldwide. It affects men three times more than women. It is associated with inguinal adenopathy that is typically unilateral and tender with tendency to become suppurative and fistulize. Single-dose treatment with azithromycin 1 gm orally or ceftriaxone 250 mg intramuscularly is first line therapy. While ciprofloxacin can be a secondary regimen, resistance to ciprofloxacin has been reported in some regions. Patients should be reexamined in five to seven days. Sexual partners should be treated if sexual relations were held within two weeks before or during the eruption of the ulcer.

73. A 52-year-old woman has persistent urinary frequency, urgency, and urge incontinence after six months of behavioral modification and pelvic floor physiotherapy. Physical examination demonstrates rotational descent of the anterior vaginal wall and a spurt of urine per urethra with deep coughing. The next step is:
A: antimuscarinic medication.
B: use of a pessary.
C: peri-urethral collagen injection.
D: mid-urethral polypropylene sling.
E: autologous fascial bladder neck sling.
Answer= A.
This patient has mixed urinary incontinence. Although a sling or periurethral injectable agent may resolve the stress incontinence demonstrated on physical examination, this is not her primary complaint. A pessary is not indicated since she has no prolapse symptoms and it is not likely to cure her mixed symptoms. Several studies have found that urge predominant mixed urinary incontinence symptoms often respond to antimuscarinics medication.

74. The most important factor responsible for the frequent recurrence of UTIs in an otherwise healthy young woman is:
A: adhesive fimbriae of uropathogens.

B: specific receptors on urothelial cells.
C: presence of pathogenic coliforms in stool.
D: feminine hygiene practices.
E: method of contraception.
Answer= B.
Properties of uropathogens, sexual activity, feminine hygiene practices and the use of an IUD and/or spermicide may increase the frequency of UTIs in predisposed women, however they are not the most important etiologic factors. Many women have uropathogenic bacteria present in their bowel, use various contraceptive and hygiene methods, and are sexually active without developing infections. E. coli must colonize the peri-urethral area before an uncomplicated infection can occur. Coliform organisms are recovered only rarely from the region of the vaginal vestibule and external urethra in otherwise healthy women who do not have recurrent UTIs. It is postulated by most researchers that host factors rather than specific pathogenicity of the micro-organisms are the prime determinants of colonization. E. coli tend to adhere more to vaginal and buccal epithelial cells obtained from women with recurrent infection than to controls. This explains why certain women are prone to frequent recurrent infections. It would also explain why women with asymptomatic bacteruria are more prone to recurrent infection with marriage and pregnancy and would account for UTIs associated with intercourse, various contraceptive methods, etc., in highly susceptible women.

75. An eight-year-old boy is involved in a MVC. A CT scan confirms a right UPJ disruption. He has had a right ureteral reimplant at the age of four years. The next step is:
A: percutaneous nephrostomy.
B: primary ureteropyelostomy.
C: transureteroureterostomy.
D: ileal ureter.
E: nephrectomy.
Answer= B.
Disruption of the ureteropelvic junction in a child secondary to trauma is a prime indicator for operative intervention. His kidney should be salvaged and a percutaneous nephrostomy tube may not be diverting. While the distal blood supply of the ureter has been disrupted due to his previous surgery, his ureter should still have an adequate blood supply from the middle ureteral vessels. A primary repair is the best treatment option. Transureteroureterostomy would potentially put the contralateral renal unit at risk unnecessarily and not likely to be technically feasible.

76. A 67-year-old man had a radical cystectomy and orthotopic diversion ten days ago. He now has feculent material draining from his urinary stents and urethral catheter after an episode of severe post-operative colitis. Within 24 hours, his temperature is 39°C, and his blood pressure is 95/50 mmHg. A CT scan of the abdomen and pelvis reveals an intraperitoneal abscess. Rectal examination is normal. The next step is:
A: percutaneous drain placement.
B: bowel rest with hyperalimentation.
C: bilateral percutaneous nephrostomy tubes.
D: fistula repair with bowel diversion.
E: proximal bowel diversion.
Answer= E.
Nonoperative management is a viable option in selected patients with vesicoenteric fistulas, however, patients chosen for such treatment should be minimally symptomatic with benign fistulas. For those requiring surgical exploration, both one and two stage procedures have been based on clinical circumstances. The decision regarding a one or two stage procedure is influenced by the location and etiology of the fistula, the patient's general condition, the timing of the exploration relative to the original procedure, the presence of pelvic abscess, the presence of colonic obstruction, and the severity of the inflammatory response. Patients without gross fecal contamination can be treated with a one-stage procedure, whereas those with unprepped bowel, gross fecal contamination, severe inflammatory response, or abscess require a two-stage procedure.

77. Calcium reabsorption in the distal renal tubule is mediated primarily by:
A: Vitamin D.
B: aldosterone.
C: hypocalcemia.
D: urinary sodium.
E: parathyroid hormone.
Answer= E.
Parathyroid hormone mediates renal reabsorption of calcium in the distal nephron. More proximally in the nephron, calcium is reabsorbed in concert with sodium. Vitamin D influences calcium homeostasis primarily by enhancing small bowel absorption. Significant hypocalcemia stimulates renal calcium preservation by inducing parathyroid hormone secretion. Aldosterone mediates distal renal preservation of sodium in exchange for available hydrogen and/or potassium, and has no direct effect on calcium reabsorption.

78. A healthy newborn boy has bilateral Grade 4 VUR. This is most commonly associated with:
A: low outlet resistance.
B: uninhibited detrusor contractions, coordinated voiding.
C: poor bladder compliance.
D: high pressure voiding with high residual.
E: lack of detrusor contractility.
Answer= D.
Reflux in newborn boys is commonly high grade and associated with uninhibited detrusor contractions during filling, high pressure voiding due to elevated outlet resistence, detrusor-sphincter dyssynergy, and high postvoid residuals. Uninhibited, detrusor contractions associated with coordinated voiding is normal in infants and not associated with high grade VUR. Compliance and contractility are generally within the range of normal for these boys. The best treatment for infant boys with high grade VUR is prophylactic antibiotics and observation. Most of these infants will decrease their outlet resistance and resolve their VUR with neurourologic maturation during the first year of life.

79. A 47-year-old woman with symptomatic stress urinary incontinence develops dyspareunia and postvoid dribbling. A urethral diverticulum is confirmed with a vaginal ultrasound. Videourodynamics demonstrate an open bladder neck at rest, stable filling, and a Valsalva LPP of 70 cm of H2O. The best treatment is urethral diverticulectomy and:
A: urethral bulking agent if stress urinary incontinence persists.
B: Martius fat pad.
C: pubovaginal fascial bladder neck sling.
D: a synthetic mid-urethral sling.
E: retropubic Burch colposuspension.
Answer= C.
This patient will likely have worsening stress urinary incontinence postoperatively. A concomitant pubovaginal fascial sling would treat the stress incontinence and have no increased risk of infection or urethral erosion. Concomitant placement of a synthetic sling should be avoided because of the potential risk of infection and erosion into the urinary tract. A Martius fat pad will not treat the incontinence. Collagen is unlikely to provide long term relief of stress urinary incontinence. It is unnecessary to perform a retropubic exploration at the time of a vaginal incision for urethral diverticulectomy, in addition, the intrinsic sphincter deficiency as suggested by the open bladder neck is treated better with a sling than a Burch procedure.

80. A 52-year-old man with a history of lung cancer has a 5 cm adrenal mass with an attenuation of 45 Hounsfield units noted on follow-up chest CT scan. Metastatic evaluation is otherwise negative. Serum catecholamines and urinary free cortisol levels are normal. The next step is:

A: MRI scan.
B: PET scan.
C: MIBG scan.
D: percutaneous needle biopsy.
E: adrenalectomy.
Answer= D.

The CT findings are consistent with a metastatic lesion and percutaneous biopsy is indicated to confirm this diagnosis. If an adrenal mass has an attenuation of less than 0 Hounsfield units (HU), it is considered an adenoma. If the attenuation value is between 0 and 20 HU, chemical shift MRI is recommended. If lipid is detected in the lesion with this test, the mass is most likely an adenoma. Percutaneous biopsy is indicated when the attenuation is greater than 20 HU or if the lesion is otherwise indeterminant. To proceed immediately to an adrenalectomy in this setting of a previous primary malignancy such as lung cancer is inappropriate until tissue diagnosis is obtained. Treatment options will depend upon pathology of the lesion.

81. The earliest clinical manifestation of a tethered spinal cord in children is:

A: constipation.
B: upward Babinski reflex.
C: lower limb weakness, gait abnormality.
D: increased deep tendon reflexes of the lower limb.
E: urinary incontinence secondary to detrusor overactivity.
Answer= E

Currently one third of the symptomatic patients undergoing detethering of the spinal cord will present with urologic complaints, 50% will present with the late findings of lower limb weakness/gait disturbance and approximately 15% with back pain. Bowel dysfunction is a rare presenting complaint. Damage from a tethered cord is the result of inadequate oxygen metabolism in the spinal cord. The cord becomes tethered between the site of tethering and where the anterior and posterior nerve roots exit the canal. Repetitive flexion and extension and/or Valsalva activity of any type kinks the arterioles and venules, thereby reducing blood supply to the tethered cord. The clinical findings of tethered cord come from accumulative hypoxemic damage and may occur at any age. The diverse structure of the spinal cord plays a large role in the pathogenesis of this disorder; specifically interneuronal axon connections have the highest oxygen requirements and are the first to become damaged. Clinically, this means the pelvic nerves and the sacral reflex arc will be the first to manifest the hypoxic damage, lower limb weakness and back pain occurring at a later time. Once an MRI scan depicts a tethered or abnormally lying cord, surgical detethering will not correct the MRI picture. Long-term follow up has revealed that up to 20% of tethered cords may redevelop symptomatic findings of re-tethering. The inability of the MRI scan to rule out re-tethering places the urologist and urodynamic testing in a key position. Specifically serial urodynamic tests or electromyography of the muscles involved with the sacral reflex arc are monitored at set intervals usually three months post surgical release of the cord and then again at six to twelve month intervals. Alterations in the urodynamic tests will result in increase attentiveness by the neurosurgeon for the development of re-tethering of the spinal cord.

82. A 72-year-old man has frequency, urgency, and urge incontinence after transurethral microwave treatment. While on an alpha-blocker, his AUA Symptom Score is 20 with a high degree of bother. Pressure flow study shows detrusor overactivity with incontinence, a voiding pressure of 65 cm H2O, and a flow of 3 ml/sec. PVR=175 cc. The best treatment is:

A: oxybutynin.
B: oxybutynin and 5-alpha-reductase inhibitor.
C: sacral neuromodulation.
D: CIC.
E: TURP.
Answer= E.

Urodynamic testing is reasonable in patients who have failed prior operative treatment. In patients who have obstruction and detrusor overactivity relief of the obstruction will generally result in resolution of the detrusor overactivity. Although antimuscarinics may help the patient's symptoms they do not treat the underlying persistent obstruction - clearly present in this case. 5-alpha-reductase inhibitors reduce prostate volumes and modestly improve symptoms but may not treat the underlying obstruction. CIC or neuromodulation will not address the obstruction. TURP is most likely to resolve the obstruction and improve symptoms.

83. The advantage of a non-refluxing ureterointestinal anastomosis is that it decreases:

A: upper tract colonization.
B: ureterointestinal stricture.
C: pressure transmission to the upper urinary tract.
D: metabolic abnormalities.
E: stone formation.
Answer= C.

Non-refluxing ureterointestinal anastomoses do not prevent upper tract colonization. Virtually all upper tract systems are found to be colonized when urine is aspirated above the non-refluxing anastomoses. Studies which have compared non-refluxing colon conduits to refluxing ileal conduits show similar rates of upper tract deterioration. While a properly functioning non-refluxing ureteral anastomosis does prevent pressure transmission to the upper urinary tract, this benefit is in part offset by a higher incidence of ureterointestinal stricture. This has caused some to question the benefit of creating non- refluxing anastomoses in any form of urinary diversion whether conduit or continent. There is no impact on metabolic issues or stone formation.

84. A 30-year-old man with diabetes insipidus has been NPO for 16 hours. He becomes confused, lethargic, and hyperreflexic. The initial fluids given should be:

A: lactated Ringers.
B: D5W.
C: D5W/.2NS.
D: D5W/.45NS.
E: 3% saline.
Answer= A.

This patient has symptoms characteristic of hypovolemic hypernatremia. This has occurred due to water loss from his diabetes insipidus without the ability to replace water or electrolytes orally. It is essential to first restore plasma volume with a relatively isotonic solution like lactated Ringers. The hypernatremia should then be corrected slowly with increased free water being given. Correction should decrease serum levels by no more than 10 mEq per day to prevent intracranial swelling and fatal complications. Hypertonic saline is contraindicated.

85. A 38-year-old woman with stress urinary incontinence and recurrent UTIs undergoes urethral diverticulectomy. One month following removal of the catheter, she has constant dribbling incontinence. Examination reveals a 5 mm urethrovaginal fistula in the proximal urethra. The next step is:

A: topical estrogen therapy and suprapubic cystostomy.
B: place urethral catheter and obtain VCUG in three to six weeks.

C: transurethral fulguration of the fistula tract and placement of a urethral catheter.
D: urethrovaginal fistula repair.
E: urethrovaginal fistula repair and midurethral polypropylene sling.
Answer= D.
Proximal urethrovaginal fistulae may present with constant dribbling incontinence. A large (5 mm) urethrovaginal fistula is unlikely to close with urinary drainage or fulguration. The safety of synthetic materials is not established in the setting of urinary fistula or prior urethral diverticulectomy. Surgical repair of the fistula should be undertaken two to three months post-operatively, and re-evaluation of the SUI done once the fistula is repaired. Long term indwelling urethral catheter is not recommended due to the development of chronic bacteruria and chronic inflammation.

86. The vessel at greatest risk for injury during laparoscopic placement of an umbilical trocar is the:
A: right common iliac vein.
B: vena cava.
C: abdominal aorta.
D: right common iliac artery.
E: inferior mesenteric artery.
Answer= D.
Major vascular injury is a rare but serious complication that occurs in 0.11-2% of cases. The right common iliac artery lies close to the mid-line at the inferior umbilicus. Therefore, with placement of an umbilical trocar, the right common iliac artery is the most commonly injured vessel, followed by the aorta. In contrast, the IVC is less frequently involved because of its lateral location in relation to the aorta. The common iliac veins are rarely involved given their posterior location in relation to the common iliac arteries.

87. A 71-year-old man with a history of aortoiliac reconstruction has left flank pain. A noncontrast CT scan reveals obstruction of the left ureter at the pelvic brim. The most likely cause of the obstruction is:
A: compression from an anteriorly placed graft.
B: pseudoaneurysm formation.
C: retroperitoneal fibrosis.
D: ligation of the ureter.
E: ischemia of the ureter.
Answer= C.
Ureteral obstruction is a recognized complication of reconstructive vascular procedures. The incidence of temporary, asymptomatic hydronephrosis is 12-30%, and mild or moderate permanent ureteral obstruction is seen in 2-14% of patients. Most patients develop ureteral obstruction within one year following the procedure; however, delays up to 14 years have been reported. Retroperitoneal fibrosis secondary to the surgical procedure is the most common cause of ureteral obstruction and is believed to be secondary to bleeding or excessive periureteral dissection. The other choices are all causes of obstruction, but not the most common.

88. A 72-year-old woman with a history of Hirschsprung's disease and multiple sclerosis has overactive bladder symptoms unresponsive to antimuscarinic medication. Six months ago, she had botulinum toxin injections into her leg for intractable spasms. Her urinalysis is leukocyte and nitrite positive. Botulinum toxin injections into the bladder is contraindicated due to her:
A: age.
B: neurological diagnosis.
C: history of botulinum injection six months previously.
D: history of Hirschsprung's disease.
E: urinalysis.
Answer= E.
Among the parameters mentioned, only the presence of a positive urinalysis would preclude treatment with botulinum toxin. Patients of all ages have been treated with botulinum toxin and certainly patients with neurological conditions such as multiple sclerosis have been effectively and safely treated. Though no concrete data exist to define at what point it is reasonable to inject detrusor botulinum toxin after injection at other sites, most studies have suggested that at least three months pass between injections. The presence of Hirschsprung's disease is not a known contraindication to botulinum toxin bladder injections. A contraindication to botulinum toxin injection is the presence of an active urinary tract infection.

89. Renal ultrasound reveals an echogenic mass with speed-propagation artifact. The most likely diagnosis is:
A: simple renal cyst.
B: acute focal pyelonephritis (lobar nephronia).
C: intrarenal abscess.
D: angiomyolipoma.
E: RCC.
Answer= D.
Ultrasonography is a very useful imaging modality for distinguishing kidney masses. Specifically, it is able to use the acoustic properties of the renal parenchyma to aid in diagnosis. The presence of an echogenic mass immediately eliminates the diagnosis of simple cyst, as these are usually echo-free. In addition, while lobar nephronia may appear like a mass on ultrasound, it is usually echo-poor or echo- free as well. RCCs, intrarenal abscesses and angiomyolipoma all may be echogenic. Angiomyolipomas are usually echogenic, while RCCs and intrarenal abscesses have variable echogenicity. The key here is the speed-propagation artifact, which is due to the presence of fat in the tumor. In this case, the speed of sound in the fat is significantly slower than that in the soft tissue, which causes the unique artifact that confirms the diagnosis of angiomyolipoma.

90. During surgical exploration for penetrating renal trauma, the first major branch of the left renal artery is transected. The renal segment most likely supplied by this branch is:
A: apical.
B: upper anterior.
C: middle anterior.
D: lower.
E: posterior.
Answer= E.
The first branch of the left renal artery is a small ureteral branch, but the first major branch is the posterior or dorsal artery. This artery primarily supplies the posterior segment of the kidney alone, but occasionally may provide a small branch to the apical segment as well. The anterior or ventral artery generally supplies branches to all but the posterior segment.

91. Vascular reconstruction is recommended in hypertensive patients with:
A: bilateral medial fibroplasia.
B: bilateral ostial atherosclerotic lesions and poorly controlled hypertension on two medications.
C: unilateral 85% renal artery stenosis and a serum creatinine of 1.5 mg/dl.
D: bilateral 70% renal artery stenosis and a serum creatinine of 4.5mg/dl.
E: bilateral 80% renal artery stenosis and serum creatinine of 2.0mg/dl.
Answer= E.
Re-vascularization is typically recommended in renal artery stenosis when > 75% occlusions occur either bilaterally or in a solitary single kidney. With severe renal loss (serum creatinine > 4 mg/dl), the likelihood of renal recovery is substantially reduced and

revascularization is not recommended. Atherosclerotic renal vascular hypertension should be treated medically, typically with at least three medications before resorting to revascularization. Medial fibroplasia typically is not progressive and revascularization for this process is rare.

92. A 35-year-old man with new onset hypertension has a serum K+ of 2.9 mEq/l, a serum aldosterone of 80 ng/dl (normal 2-9 ng/dl) and a low peripheral renin level. An abdominal CT scan shows no adrenal masses. Adrenal venous localization studies show aldosterone levels of 6000 ng/dl and 8 ng/dl from the left and right, respectively. The next step is:
A: MIBG scan.
B: MRI scan with T2 weighted images.
C: left adrenalectomy.
D: ACE inhibitor and K+ supplement.
E: spironolactone.
Answer= E.
Hypokalemia, an elevated serum aldosterone level and a normal peripheral renin level suggest primary hyperaldosteronism. The CT shows no adrenal mass suggesting adrenal hyperplasia. An MRI with T2 weighted images is useful in cases of a pheochromocytoma but this is not suggested by the biochemical data. An MIBG scan lacks sensitivity. Venous localization studies are most useful in this case. Venous localization studies demonstrate convincingly the pathology is from the left adrenal, suggesting unilateral hyperplasia. Spironolactone would be the first treatment. If the hypertension and hyperkalemia are not corrected, a left adrenalectomy would be indicated.

93. The inferior mesenteric artery is ligated during a RPLND for testis cancer. Blood supply to the sigmoid colon is now derived from which artery:
A: right colic.
B: superior hemorrhoidal.
C: middle hemorrhoidal.
D: sigmoid.
E: middle sacral.
Answer= C.
The main arterial supply of the sigmoid colon is from the sigmoid and superior hemorrhoidal branches of the inferior mesenteric artery (IMA). The major collateral vessels are the middle and inferior hemorrhoidal arteries which arise from the internal iliac artery. They anastomose freely with the superior hemorrhoidal branches. It is distributed to the rectum, anastomosing with the inferior vesical artery, superior rectal artery, and inferior rectal artery. The right colic artery arises from the superior mesenteric artery and does not have collaterals to the distal colon. The superior hemorrhoidal arteries and sigmoid arteries are continuations of the IMA and is filled retrograde when the IMA is ligated. The middle sacral artery arises from the back of the aorta and gives some blood supply to the rectum.

94. A 75-year-old man is scheduled to undergo cataract surgery. He is currently taking tamsulosin, doxazosin, and metoprolol. The medication(s) associated with intra-operative floppy iris syndrome is/are:
A: tamsulosin.
B: doxazosin.
C: metoprolol.
D: tamsulosin and doxazosin.
E: tamsulosin and metoprolol.
Answer= D.
While tamsulosin had been the most widely publicized alpha-1a blocker to be associated with intra- operative floppy iris syndrome (IFIS) during cataract surgery, other alpha-blockers have as well (including super-selective and less selective agents). Although not eliminating the risk of IFIS, discontinuing these medications one to two weeks prior to surgery lowers the incidence.

95. A 35-year-old Cushingoid woman undergoes left adrenalectomy for a small adrenal adenoma. Postoperative cortisol levels remain high. Her serum ACTH is low and an MRI scan of the brain is normal. The best therapy is:
A: aminoglutethimide.
B: right adrenalectomy.
C: ketoconazole.
D: ortho-para DDD.
E: metyrapone.
Answer= E.
Excess circulating glucocorticoids may be due to adrenal adenoma or carcinoma, or to ectopic secretion of ACTH or CRH. This patient has no evidence of Cushing's disease or ACTH dependent disease. She most likely has a contralateral adrenal source and glucocorticoid suppression with metyrapone is the most appropriate next step. Agents include aminoglutethimide, which blocks the conversion of cholesterol to pregnenolone; metyrapone, which blocks the conversion of 11-desoxycortisol to cortisone. Patients given aminoglutethimide are prone to develop adrenocortical insufficiency because aldosterone production is also impaired. Metyrapone does not normally result in salt wasting because of increased production of desoxycorticosterone, a potent mineralocorticoid. A right adrenalectomy in a patient with a solitary adrenal gland would commit the patient to lifelong steroid replacement.

96. A four-year-old boy is undergoing salvage cystoprostatectomy for rhabdomyosarcoma after failing chemotherapy and XRT. The best urinary diversion is:
A: ileal loop.
B: Kock pouch.
C: ileocolonic pouch.
D: sigmoid conduit.
E: transverse colon conduit.
Answer= E.
In patients with prostatic rhabdomyosarcoma who have failed chemotherapy and XRT, the best form of diversion, with the lowest complication rate is a transverse colon conduit. Once the patient has completed additional chemotherapy and no recurrence of malignancy has occurred for a minimum of two years, conversion to a continent urinary diversion can be considered.

97. A 27-year-old quadriplegic woman has urinary incontinence. Videourodynamics reveal a detrusor LPP of 65 cm H2O at 100 ml without VUR. Abdominal LPP is 105 cm H2O. The best management is:
A: indwelling urethral catheter.
B: intradetrusor botulinum toxin injection.
C: ileovesicostomy.
D: augmentation cystoplasty and pubovaginal fascial sling.
E: appendicovesicostomy and augmentation cystoplasty.
Answer= C.
This patient has dangerously elevated intravesical pressures and a continuously draining ileovesicostomy will permit low pressure bladder emptying. An indwelling catheter has the risk of UTI, stones, cancer and urethral erosion. The incompetent outlet of the ileovesicostomy acts as a "pop off" as the bladder fills and therefore the intravesical pressure will remain safe. Bladder neck fascial sling is not necessary as it is unlikely that this individual will have stress incontinence per urethra given her high abdominal LPP and her limited mobility. She is a quadriplegic and catheterization following augmentation cystoplasty through an abdominal stoma or her urethra increases her risks, dependence on a caretaker, and is not practical.

98. A 50-year-old woman undergoes radical nephrectomy. Pathology reveals collecting duct carcinoma with invasion of the perinephric fat and microscopic involvement of one hilar node. Her metastatic evaluation is otherwise negative. The next step is:
A: observation.
B: XRT to the flank.
C: cisplatin and 5-FU.
D: tyrosine kinase inhibitor.
E: M-VAC chemotherapy.
Answer= A.
Collecting duct carcinoma is an unusual and aggressive type of renal tumor. While this patient is at risk for disease recurrence and progression, she is at this time without evidence of disease and no further therapy is indicated. There are no data that demonstrate efficacy of any form of adjuvant therapy.

99. A 50-year-old man who underwent radical cystoprostatectomy and orthotopic bladder reconstruction five years ago develops congestive heart failure. The best treatment for his persistent hyperchloremic metabolic acidosis is:
A: furosemide.
B: citric acid and sodium citrate.
C: sodium bicarbonate.
D: chlorpromazine.
E: potassium citrate.
Answer= D.
The treatment of hyperchloremic metabolic acidosis requires administration of alkalinizing agents or blockers of chloride transport. In patients in whom excessive sodium loads are undesirable, nicotinic acid or chlorpromazine may be administered to control the acidosis. Nicotinic acid and chlorpromazine inhibit cyclic AMP and thereby impede chloride transport. Furosemide will not correct the metabolic acidosis. Bicitra, sodium bicarbonate, and Polycitra all contain significant amounts of sodium which could potentiate the congestive heart failure.

100. A 47-year-old woman undergoes a mid-urethral sling for the treatment of stress urinary incontinence. Optimal postoperative prophylaxis against DVT should include early postoperative ambulation and:
A: nothing else.
B: graduated compression stockings.
C: intermittent pneumatic compression.
D: aspirin.
E: low molecular weight heparin.
Answer= A.
The prevention of DVT in patients undergoing anti-incontinence and pelvic reconstructive surgeries should be dictated by preoperative individual patient and procedure specific DVT risk factors. In an uncomplicated patient without risk factors for DVT undergoing an anti-incontinence procedure for the treatment of stress urinary incontinence, early postoperative ambulation is considered adequate prophylaxis against postoperative DVT.

101. The chemotherapeutic agent most likely to be associated with increased toxicity because of reabsorption from an ileal neobladder is:
A: methotrexate.
B: gemcitabine.
C: vincristine.
D: doxorubicin.
E: cisplatin.
Answer= A.
Toxic metabolic effects secondary to drug reabsorption of methotrexate from intestinal mucosa used in urinary tract reconstruction can occur. Vigorous hydration, alkalinization of the urine, and catheter drainage can prevent this complication. The other agents given do not display a significantly increased toxicity because of intestinal reabsorption. Methotrexate is the smallest molecule of those listed, and therefore most likely to be absorbed.

102. A 12-year-old boy complains of intermittent right scrotal pain two weeks after being kicked in the groin. Both physical examination of the scrotal contents and urinalysis during an episode of pain are normal. Doppler ultrasound of the testis demonstrates normal flow, and a 5 mm subtunical cystic lesion in the lower pole of the right testes without internal echoes or calcification. The next step is:
A: radical orchiectomy.
B: scrotal exploration and biopsy of the lower pole lesion.
C: repeat physical examination and urinalysis in three months.
D: repeat ultrasound in three months.
E: bilateral orchiopexy.
Answer= D.
The questions for this peripubertal boy with intermittent testicular pain are whether he has intermittent torsion and whether the lesion in the testis requires excision. With a normal physical examination; i.e., no horizontal lie to the testis, it is difficult to diagnose intermittent torsion especially since the problem has been evident for only two weeks. The lesion in the right testis is clearly a cyst by ultrasound and treatment for this would be observation with follow-up ultrasound in three months. True simple cysts of the testis are usually non-palpable, usually subtunical near the mediastinum of the testis, and rarely change on follow-up ultrasound. Complex cysts or cysts with calcification tend to be more associated with malignancy and require more aggressive management.

103. A 62-year-old man with bothersome LUTS has an AUA Symptom Score of 26, despite an adequate trial of an alpha-blocker and finasteride. DRE reveals a 40 gm benign prostate. PSA six months ago was 2.3 ng/ml. Prior to KTP laser prostatectomy, the next step is:
A: urinalysis.
B: repeat PSA.
C: uroflowmetry
D: cystoscopy.
E: pressure flow urodynamics.
Answer= A.
The only recommended test prior to surgery, beyond those already mentioned, is a urinalysis. A positive urinalysis may trigger other testing. PSA was normal within the last year and need not be repeated. Cystoscopy, uroflowmetry, and postvoid residual testing are all optional. Cystoscopy may be appropriate if the size of the prostate is in doubt, particularly if it may be too large for endoscopic management. Uroflowmetry, although not specific, may be a reasonable indicator of bladder outlet obstruction. Pressure flow testing is the best assessment for outlet obstruction but is costly, invasive, and not recommended routinely unless the diagnosis is in doubt - for example, younger men with small prostates and severe LUTS, or if there is concern for neurogenic detrusor dysfunction.

104. In women with invasive carcinoma of the proximal urethra, the primary lymphatic nodes for metastatic disease are the:
A: superficial inguinal.
B: deep inguinal.
C: external iliac.
D: hypogastric.
E: obturator.
Answer= C.
Urethral carcinoma is more common in women, and may involve either the anterior or posterior urethra. The location of the primary tumor will dictate the primary landing zone. The anterior (distal) urethra and labia drain to the superficial and then deep inguinal nodes, while the posterior (proximal) urethra drains primarily to the

external iliac, and then secondarily to the hypogastric and obturator lymph nodes.

105. A four-year-old girl with bilateral grade 3 VUR has two breakthrough UTIs in six months. She has three to four episodes of urinary incontinence per day and two hard bowel movements per week. She is neurologically normal. A DMSA renal scan is normal. The next step is:
A: bilateral subureteric injection.
B: bilateral reimplantation.
C: oxybutynin and timed voiding.
D: treatment of constipation and bilateral subureteric injections.
E: treatment of constipation and timed voiding.
Answer= E.
The likely cause of this child's breakthrough infections is dysfunctional elimination syndrome, which may be present in as many as 20% or more of children with VUR. The enuresis and constipation are indicative of abnormal function. While she may ultimately need reimplantation, it is prudent to attempt to control her voiding dysfunction before undertaking surgical repair. Correction of VUR will not treat the underlying pathology. Her voiding dysfunction includes both bladder and bowel components and both need to be addressed with a timed voiding regimen and effective treatment of constipation. Oxybutynin will exacerbate the constipation and should be used only in refractory cases unresponsive to timed voiding and bowel management.

106. The most common complaint following 16-dot plication for Peyronie's disease is:
A: pain with erection.
B: decreased penile sensation.
C: discomfort in the area of the suture.
D: penile shortening.
E: narrowing of penile girth.
Answer= D.
Sixteen-dot plication for correction of Peyronie's disease is a simple and non-extirpative method to straighten the penis. The most common postoperative complaint in a series of 132 patients was penile shortening (41%) followed by suture pain/discomfort (12%), pain with erection (11%), narrowing of the phallus (9%), decreased penile sensation (6%) and hematoma formation (4%).

107. Deletions or mutations on chromosome 3 are most common in which histologic subtype of RCC:
A: clear cell.
B: chromophobe.
C: collecting duct.
D: medullary cell.
E: papillary.
Answer= A.
Genetic alterations on chromosome 3 are common in the clear cell variant of RCC but are uncommonly found in the other histologic variants, suggesting distinct pathways to tumorigenesis. The VHL tumor suppressor gene located at chromosomal locus 3p25 is mutated in approximately 50% of clear cell type RCC. The mutations of this gene result in decreased expression of hypoxia inducible factor 1 (HIF1) and increased expression of vascular endothelial growth factor 1 (VEGF1), thereby resulting in increased angiogenesis.

108. A four-year-old boy has renal failure due to membrano-proliferative glomerulonephritis. He has undergone a bilateral orchiopexy and proximal hypospadias repair as an infant. He is at greatest risk for development of:
A: gonadoblastoma.
B: NSGCT.
C: Sertoli cell tumor.
D: Wilms' tumor.
E: RCC.
Answer= D.
A number of recognizable syndromes are associated with an increased incidence of Wilms' tumor. Three syndromes that are well known to be at high risk for Wilms' tumor development include Denys- Drash syndrome (male pseudohermaphroditism manifested by proximal hypospadias and cryptorchidism, membrano-proliferative glomerulonephritis, and nephroblastoma), Beckwith-Wiedemann syndrome (macroglossia, nephromegaly, hepatomegaly) and WAGR syndrome (Wilms' tumor, aniridia, gonadoblastoma, and mental retardation. In patients with Denys Drash syndrome, the kidneys need to be monitored carefully and removed as renal failure occurs.

109. The urodynamic finding most predictive of new onset hydronephrosis in a 32-year-old T10 spinal cord injured man managed with antimuscarinic medication and CIC is:
A: bladder compliance < 10 ml/cm H2O.
B: involuntary bladder contraction amplitude of > 100 cm H2O.
C: detrusor LPP < 25 cm H2O.
D: maximum urethral closure pressure > 100 cm H2O.
E: detrusor areflexia at bladder capacity.
Answer= A.
Normal bladder compliance defined as the change in bladder volume divided by the change in detrusor pressure, should be > 12. Patients with decreased bladder compliance are at great risk for development of upper tract deterioration. The amplitude of phasic involuntary bladder contractions is of little prognostic value due to their transient nature. Detrusor LPP of > 40 cm H2O is a risk factor for upper tract deterioration however it is not as significant as poor bladder compliance. Neither detrusor areflexia nor increased urethral closure pressures are independent risk factors for hydronephrosis unless associated with elevated storage pressures.

110. A 57-year-old woman has an incidentally discovered 3.0 cm right lower pole renal mass. On CT images, the mass is heterogeneous, appears to extend beyond the capsule of the kidney, and enhances after administration of I.V. contrast. The mass measures +70 to +80 Hounsfield units with a small region within the tumor that measures -80 Hounsfield units. The left kidney appears normal. The next step is:
A: repeat CT scan in one year.
B: selective angiographic embolization.
C: laparoscopic cryoablation.
D: lower pole partial nephrectomy.
E: radical nephrectomy.
Answer= A.
This patient has CT scan findings that are pathognomonic of angiomyolipoma. Negative Hounsfield units confirm the presence of fat in this lesion, even though this can only be observed in a small region. No treatment is indicated in an asymptomatic patient with a relatively small angiomyolipoma but follow up with periodic CT scans is appropriate. Extension into the perinephric fat and even lymph node involvement can be found in association with angiomyolipoma and is thought to represent a secondary site of origin rather than a metastatic lesion. The presence of fat on a CT image is diagnostic.

111. A 38-year-old man has diarrhea and loses two liters of isotonic fluid. He drinks two liters of water for fluid replacement. These fluid shifts result in:
A: decreased renin secretion.
B: decreased aldosterone secretion.
C: two liters of water added to the extracellular fluid.
D: decreased ADH secretion.
E: water moving from intracellular fluid to extracellular fluid.

Answer= D.
The entire two liters of isotonic fluid are lost from the extracellular fluid (ECF). Since the loss is isotonic, the osmolality of the ECF did not change and no water moved out of the cells. The two liters of ingested pure water are distributed throughout the entire body water compartment; one-third remains in the ECF, and two-thirds move into the cells. The addition of pure water lowers the osmolality. Even though the decreased ECF volume would stimulate ADH secretion, the reduced osmolality would inhibit it via the hypothalamic osmoreceptors. Osmoreceptor input usually predominates during such "conflicts" unless the ECF volume depletion is very large. Renin and aldosterone secretions would increase because of the decreased ECF volume.

112. A patient complains of lack of erectile efficacy with 20 mg of tadalafil. He has used it six times and always takes it with dinner. The next step in treatment is:
A: continue 20 mg of tadalafil.
B: take on an empty stomach.
C: increase the dose of tadalafil.
D: change to vardenafil.
E: change to intracorporal alprostadil.
Answer= E.
The pharmacokinetic profile of the PDE5 inhibitors differs mainly in terms of the half life, with tadalafil having a significantly longer half life (17.5 hours) than vardenafil or sildenafil (4-6 hours). The other principle difference is in absorption with a concomitant fatty meal. Both vardenafil and sildenafil have decreased absorption with a high fat meal while the absorption of tadalafil is not affected by food consumption. Many studies show that at least four to six attempts may be needed to demonstrate that apatient will respond to PDE5 inhibitors. This patient has had an adequate trial of tadalafil and taking it on an empty stomach would not improve its efficacy. He has already been given the maximum FDA approved dose of tadalafil and increasing his dose will only increase the incidence of side effects. No level one evidence exists that switching PDE5 inhibitors will improve efficacy. Initiating treatment with intracorporal alprostadil would be a reasonable next step to efficaciously treat his erectile dysfunction.

113. A 22-year-old man treated with bleomycin, etoposide, and cis-platinum for a Stage II mixed germ cell tumor of the testis has a residual abdominal mass. Preoperative pulmonary function testing discloses a mild reduction in forced vital capacity. The most important factor in minimizing the risk of post-operative pulmonary problems after RPLND is limitation of:
A: inspired oxygen concentration.
B: the extent of resection.
C: perioperative steroids.
D: I.V. fluids.
E: the length of the incision.
Answer= D.
Current literature has challenged the classical teaching that oxygen exposure increases the likelihood of pulmonary toxicity in patients treated with bleomycin. In this study the factors associated with postoperative pulmonary problems were positive fluid balance, amount of blood transfused, surgical time, estimated blood loss, and forced vital capacity, while the fraction of inspired oxygen was not a predictor of adverse outcome. Avoiding overhydration was the most important factor in limiting pulmonary problems.

114. The development of acute renal failure following the I.V. administration of iodinated contrast material is most frequently associated with:
A: the presence of diabetes mellitus.
B: pre-existing cardiovascular disease.
C: lack of hydration.
D: multiple drug allergies.
E: previous allergic reaction.
Answer= C.
Several articles have pointed out that contrast agents may occasionally be toxic, especially in the diabetic or multiple myeloma patient. However, the most important factor in avoiding the development of acute renal failure after intravenous administration of contrast agent is adequate hydration followed by the correct dosage of the contrast agent. Pre-existing cardiovascular disease alone is not a significant risk factor nor is a history of drug allergies or allergic reactions. The presence of diabetes mellitus alone is not a risk factor unless accompanied by dehydration.

115. The concomitant condition that would place a woman with asymptomatic bacteruria at greatest risk for developing a symptomatic UTI is:
A: type I diabetes mellitus.
B: type II diabetes mellitus.
C: hypertension.
D: hypothyroidism.
E: hyperthyroidism.
Answer= B.
The prevalence of asymptomatic bacteruria is higher in women with diabetes mellitus. Women with type II diabetes mellitus and asymptomatic bacteruria are at higher risk for developing a symptomatic UTI. However, patients with type I diabetes mellitus and asymptomatic bacteruria are not at higher risk for this occurrence. There are no known risks of developing symptomatic UTIs in hypertension or thyroid disorders.

116. A 61-year-man complains of new onset of nocturnal incontinence two years after cystectomy and orthotopic ileal neobladder. He has daytime continence. The nocturnal incontinence persists despite restricting fluids for several hours before retiring. The next step is:
A: Kegel exercises.
B: oral anticholinergics.
C: determine PVR.
D: augmentation of the neobladder.
E: artifical urinary sphincter.
Answer= C.
A likely cause of late onset nocturnal incontinence following orthotopic ileal neobladder is mucous retention resulting in incomplete bladder emptying. Patients with this condition may still maintain good daytime continence by voluntary contraction of the external sphincter and frequent voiding, but at night pelvic floor relaxation, decreased urethral closing pressure, and hypertonic urine production with an obligate water loss overcome these compensatory behaviors. This problem is best managed initially by catheterization of the pouch to determine PVR irrigating the mucous, and containing optimal drainage of the pouch prior to retiring. If nocturnal incontinence persists, setting an alarm to wake during night can be beneficial.

117. Spontaneous bladder perforation after enterocystoplasty is most likely the result of:
A: transmural cystitis.
B: mucous plug.
C: catheter trauma.
D: ischemic necrosis.
E: bladder malignancy.
Answer= D.
Ischemic necrosis of the augmented bladder wall may result from inefficient bladder emptying and chronic overdistention. Patient noncompliance with intermittent catheterization and mucus plugs may contribute to chronic overdistention, but are not the primary

cause for bladder rupture after augmentation cystoplasty. A lack of detrusor sensation, chronic inflammation and the presence of bladder calculi may also be contributing factors. Bladder malignancy following enterocystoplasty is a rare occurrence and not found to be associated with spontaneous bladder perforation.

118. The most significant difference between ureteroscopy and SWL in the treatment of a 1 cm lower pole kidney stone is:
A: stone free rate.
B: need for stenting.
C: length of stay.
D: postoperative complication rate.
E: return to work.
Answer= E.
One study identified the major difference between SWL and ureteroscopy for lower pole stones was return to work, specifically 3.3 days following SWL compared to 8.5 days following ureteroscopy. Although SWL arguably provides acceptable first line therapy for stones 1 cm or less based on the initial randomized trial, ureteroscopy has been touted as a promising alternative that can improve the stone free rate with little additional morbidity over SWL. However, in this small trial investigators were unable to validate the hypothesis that ureteroscopy was superior to SWL. The stone free rate after ureteroscopy and SWL for lower pole stones of less than or equal to 1 cm was remarkably low and not statistically different between the two modalities. While the results of the study support that either SWL or ureteroscopy may be used in this situation, practitioners and patients must be cognizant of the limitations of treatment modalities that rely on spontaneous fragment passage to achieve a stone-free state.

119. A 67-year-old man has adenocarcinoma of the bladder located on the lateral wall, 3 cm cephalad to the left ureteral orifice. Abdominal and pelvic CT scan and chest radiograph show no evidence of metastatic disease. The next step is:
A: colonoscopy.
B: pelvic MRI scan.
C: repeat TURBT.
D: partial cystectomy.
E: radical cystectomy.
Answer= A.
Most adenocarcinomas of the bladder represent metastases from other primary adenocarcinomas such as colon, breast, or lung cancers. Hence, a primary source other than the bladder must be considered, and this patient should undergo colonoscopy for further evaluation prior to administration of definitive therapy.

120. Compensatory renal growth in a child with a multicystic dysplastic kidney is most likely completed by:
A: first trimester.
B: birth.
C: age two.
D: adolescence.
E: one year after the multicystic dysplastic kidney is removed.
Answer= C.
Although the kidney contralateral to a multicystic dysplastic kidney does exhibit compensatory hypertrophy at birth, this occurs rapidly after birth, and by age two years, the hypertrophied kidney exhibits a GFR significantly greater than one normal sized kidney. This is not correlated with the removal of the multicystic kidney. Studies have demonstrated that compensatory renal growth can begin prenatally. Because the placenta provides the excretory function for the fetus, an increased excretory burden on the kidney is not required to initiate compensatory growth. Rather, alterations in growth factors or inhibitors presumably modulate the prenatal changes. Compensatory increase in renal mass in the adult is largely due to cellular hypertrophy. Neonatal glomerular hypertrophy results also from increased glomerular basement membrane surface area and proliferation of mesangial matrix.

121. In well-controlled diabetic patients, which class of drug should be stopped 48 hours prior to elective major surgery:
A: glargine.
B: insulin.
C: rosiglitazone.
D: chlorpropamide.
E: metformin.
Answer= D.
To stabilize glycemic control in patients taking insulin, frequent glucose monitoring should be performed, with insulin dosages adjusted appropriately. On the day before surgery, long-acting insulin can be continued throughout the day if the patient's control is good, particularly if the patient is using glargine. Oral agents are generally discontinued before surgery. Long-acting sulfonylureas (e.g., chlorpropamide [Diabinese]) are stopped 48 to 72 hours before surgery, while short-acting sulfonylureas, other insulin secretagogues, and metformin [Glucophage] can be withheld the night before or the day of surgery. No recommendations exist for discontinuation of thiazolidinediones (e.g. rosiglitazone [Avandia], pioglitazone [Actos]) before surgery; their extremely long duration of action probably indicates no rationale for stopping them at all.

122. A 49-year-old man with poor libido and erectile dysfunction has a testosterone level of 122 ng/dl (normal 200-800 ng/dl). He has mild bilateral testicular atrophy, and his prostate is approximately 15 g size, without induration or nodules. His serum PSA is 2.1 ng/ml. The next step is:
A: antibiotics and repeat PSA in six weeks.
B: free testosterone level.
C: testosterone supplementation.
D: TRUS-guided prostate biopsy.
E: % free PSA.
Answer= D.
The normal PSA for a man under 50 is < 2.5, and in light of the low testosterone, this patient should have a much lower PSA level. Hence, a PSA of 2.1 ng/ml in this setting is suspicious for cancer and a prostate biopsy should be performed. There is no role for a % free PSA estimation, as it will not alter management at this time. Alternatively, the PSA could be repeated after testosterone replacement. It may be risky to initiate exogenous testosterone without ruling out prostate cancer.

123. The normal epithelium of the distal bulbar urethra in the adult male is:
A: transitional.
B: stratified squamous.
C: pseudostratified columnar.
D: columnar.
E: keratinized stratified squamous.
Answer= C.
Pseudostratified columnar epithelium lines the urethra from the membranous area to the fossa navicularis where stratified squamous epithelium becomes predominant. Transitional cell epithelium lines the prostatic urethra to the membranous area. Neither columnar nor keratinized squamous epithelium is normally present in the male urethra.

124. A 53-year-old woman has recurrent Proteus mirabilis urinary infections. CT scan shows a right renal staghorn calculus. Urine culture is negative. The next step is:
A: staged SWL with stent.
B: ureteroscopy with laser lithotripsy.
C: percutaneous nephrolithotomy.
D: acetohydroxamic acid.

E: percutaneous nephrostomy with hemiacidrin irrigation.
Answer= C.
The American Urological Association Nephrolithiasis Guidelines Panel strongly recommends percutaneous nephrolithotomy as first line therapy for management of staghorn struvite renal calculi. The 2005 report of the Guidelines Panel states that all infected stone material should be eliminated to prevent recurrent infection lithiasis. After nephrolithotomy, hemiacidrin irrigation may be used to dissolve residual fragments. SWL for a struvite calculus requires multiple interventions and is unlikely to render the patient stone free. Ureteroscopy similarly is not likely to render the patient stone free. The urease inhibitor acetohydroxamic acid may be used to reduce the urinary saturation of struvite and decrease stone formation, however it should be noted that an increased incidence of DVT has been reported in patients receiving the medication. Ammonium chloride, methenamine hippurate and ascorbic acid have been reported to retard stone formation, but are not used as primary therapy.

125. Cystoscopy in a man often induces an increase in:
A: free PSA.
B: complexed PSA.
C: complexed/total PSA ratio.
D: PSA velocity.
E: prostate volume.
Answer= A.
Complexed PSA represents the fraction of total PSA that is circulating bound to other serum proteins, including antichymotrypsin and alpha-1 macroglobulin. Prostate manipulation including biopsy, cystoscopy, catheterization, and vigorous massage generally result in a transient increase in serum total PSA. Most of the rise in total PSA is contributed by the free (non-bound) component. In general, complexed PSA is the most stable component and relatively little rise occurs following prostate instrumentation. Complexed to total PSA ratio would decrease upon disproportionate free PSA increase. Due to the transient nature of PSA rise with prostate manipulation, PSA velocity is generally not affected.

126. A five-year-old boy with hepatosplenomegaly develops progressive azotemia and a renal concentrating defect. Ultrasound of the kidneys demonstrates slight enlargement with multiple small (1-2 mm) cortical cysts. An uncle died of renal disease. The most likely diagnosis is:
A: familial juvenile nephrophthisis.
B: autosomal recessive polycystic kidney disease.
C: autosomal dominant polycystic kidney disease.
D: tuberous sclerosis.
E: renal-retinal dysplasia.
Answer= B.
The presence of autosomal recessive polycystic kidney disease varies depending on age. In older children, hepatosplenomegaly due to portal hypertension may be prominent and associated with renal interstitial fibrosis and cortical cystic disease. Autosomal dominant polycystic disease does not usually cause renal insufficiency at such an early age; the cysts are variable in size and occur throughout the kidney. Familial juvenile nephrophthisis and renal-retinal dysplasia are associated with renal cysts which are typically located in the medulla but the kidneys are usually shrunken and scarred. Renal cysts do occur in tuberous sclerosis but renal failure is usually attributed to multiple solid angiomyolipomas.

127. Routine office cystoscopy in a woman who has urinary frequency, urgency and bladder pain with negative urine cultures is done primarily to identify:
A: glomerulations.
B: urethral diverticulum.
C: cystitis cystica.
D: squamous metaplasia.
E: urothelial tumor.
Answer= E.
The combination of LUTS and bladder pain with negative urine cultures suggest interstitial cystitis. Interstitial cystitis, in the strictest sense is a diagnosis of exclusion. The reason to perform a cystoscopy is to identify urothelial lesions such as carcinoma-in-situ, ulcerative lesions, bladder tumor, tubercular granulomas, or other treatable urothelial lesions. While glomerulations have been thought to be diagnostic for interstitial cystitis, they can only be detected with hydrodistention of the bladder under anesthesia, not routine cystoscopy. A urethral diverticulum, while potentially diagnosable with cystoscopy, is better diagnosed with pelvic MRI scan. Cystitis cystica and squamous metaplasia are common in middle aged women, and require no diagnostic testing or treatment.

128. A 49-year-old women has chronic renal insufficiency (Cr 2.1 mg/dl). A CT scan reveals stable mild bilateral hydronephrosis, small non-obstructing renal stones, and a soft-tissue filling defect in the right ureter midway between the UPJ and iliac vessels. Cystoscopy and urine cytology are normal. On ureteroscopy a papillary lesion is completely excised, and histology reveals a low grade noninvasive TCC. The next step is:
A: retrograde ureterogram and ureteroscopy in three months.
B: ureteral stent placement and intravesical BCG.
C: segmental ureterectomy.
D: distal ureterectomy with Boari flap.
E: nephroureterectomy.
Answer= A.
This patient has significant renal insufficiency and is at risk for further deterioration. There is a growing body of literature regarding the endourologic management of upper-tract TCC in this situation. Indeed, this patient is an ideal candidate for an endourologic approach given the need for renal parenchymal preservation and low grade non-invasive tumor. From a tumor standpoint there is a very low risk of progression. With close follow-up, recurrences can be treated by repeat endourologic techniques. Intravesical or percutaneous BCG is not indicated at this time as is supported by only anecdotal evidence.

129. The boundaries of the femoral triangle are the inguinal ligament:
A: adductor longus, and vastus medialis.
B: pectineus, and iliopsoas.
C: pectineus, and sartorius.
D: adductor longus, and pectineus.
E: adductor longus, and sartorius.
Answer= E.
The femoral triangle, also known as Scarpa's triangle, is bounded laterally by the medial margin of the sartorius. The medial boundary is the adductor longus and the inguinal ligament is superior. The floor of the triangle is composed of the pectineus muscle medially and the iliopsoas laterally. The location of the saphenofemoral junction is estimated to be at a point two fingerbreadths lateral and two fingerbreadths inferior to the pubic tubercle. These landmarks are important in a lymphadenectomy for penile cancer.

130. During an open gynecological procedure, the most common cause of a ureteral injury is:
A: uncontrolled bleeding from a uterine artery.
B: ureteral entrapment when ligating the ovarian pedicle.
C: ureteral damage during incision of the broad ligament.
D: mistaking the ureter for the round ligament.
E: ureteral damage while oversewing the vaginal cuff.
Answer= A.

A ureteral injury occurs in 1% of gynecological procedures. This usually results from failure to identify the ureter when attempting to obtain hemostasis. Provided there is a clear surgical field, ureteral injury due to confusing it with another structure or during occlusion of the uterine or ovarian vessels is distinctly unusual.

131. The intravesical agent that decreases recurrence rates when given within six hours of initial transurethral resection of a nonmuscle invasive bladder tumor is:
A: BCG.
B: thiotepa.
C: mitomycin C.
D: valrubicin.
E: interferon.
Answer= C.
Immediate administration of intravesical agents following initial TURBT has been postulated to decrease tumor reimplantation and provide immediate therapeutic efficacy for microscopic residual disease. A number of randomized clinical trials have shown that TUR followed by immediate administration of a single dose of mitomycin C reduces recurrence rates when compared to TUR alone. These studies have also demonstrated that this effect is lost if administration is delayed by a day or more after TUR.

132. An oliguric patient has a spot urine sodium of 8mEq/l. The condition most consistent with this laboratory finding is:
A: prerenal azotemia.
B: acute tubular necrosis.
C: chronic pyelonephritis.
D: renal tubular acidosis.
E: acute urinary obstruction.
Answer= A.
Urine volume is the difference between GFR and amount of water resorbed. If a normal adult has a GFR of 180 liters/day then 179 liters must be reabsorbed to have a urine volume of one liter. Anuria is described as urine volume that is virtually nil, i.e., less than 50 ml/day. Oliguria is substantially reduced urine volume (less than 30 ml/hour). Urine sodium concentration is usually below 25 mEq/l in volume depletion and above 40 mEq/l with normovolemia or acute tubular necrosis. A urinary sodium of only 8 mEq/l is most suggestive of prerenal azotemia. RTA and chronic pyelonephritis would not generally lower urinary sodium concentrations.

133. A 33-year-old man has active genitourinary tuberculosis. His community has a 12% incidence of isoniazid resistant (INH) Mycobacterium. The initial treatment is INH and:
A: rifampin.
B: rifampin, pyrazinamide.
C: rifampin, ethambutol, pyrazinamide.
D: rifampin, streptomycin.
E: pyrazinamide, streptomycin.
Answer= C.
The best initial treatment of genitourinary tuberculosis is triple drug treatment for two months followed by two drugs for four months. The best combination is INH, rifampin, and pyrazinamide. If the INH resistance is above 4% in the patient's community, addition of ethambutol or streptomycin to the three drugs is advised. In 1991, resistance to one or more antituberculosis drugs was noted in 14.2% of patients with tuberculosis in the United States; 9.5% of patients had resistance to isoniazid or rifampin. Drug resistant tuberculosis has an increased prevalence in patients who are HIV-positive and among people who counsel HIV patients . Isolated isoniazid-resistant tuberculosis infections should be treated with rifampin, pyrazinamide, and ethambutol for six months. For patients who have tuberculosis strains that are resistant to rifampin, an alternate regimen of isoniazid and ethambutol for 18 months or isoniazid, pyrazinamide, and streptomycin for nine months are recommended.

134. A 45-year-old man develops irritative symptoms and a fever of 39°C after beginning induction intravesical BCG therapy. The fever persists for three days despite administration of acetaminophen. Urinalysis reveals microscopic hematuria. After stopping BCG, the next step is:
A: one week of fluoroquinolone antibiotic.
B: one week of fluoroquinolone antibiotic followed by suppressive antibiotic therapy.
C: isoniazid for three months.
D: isoniazid and rifampin for six months.
E: isoniazid, rifampin, and ethambutol for six months.
Answer= C.
Intravesical BCG is generally well-tolerated, but patients should be monitored for systemic infection with BCG and treated appropriately. In the absence of bacteruria, patients with persistent (> 24 hours) high fevers (> 38.5°C) that do not respond to antipyretic therapy, should have BCG treatment discontinued and INH therapy started. This may be an early sign of a systemic BCG infection. Double and triple therapy is reserved for patients who present with pulmonary or hepatic involvement with BCG.

135. An eight-year-old boy with spina bifida is managed with CIC. He has chronic bacteriuria but normal renal function and no reflux. The most appropriate management is:
A: sterile intermittent catheterization.
B: antibiotic suppression.
C: cystoscopy.
D: observation.
E: intravesical antibiotics.
Answer= D.
Approximately half of the children on CIC have chronic bacteriuria. Despite suppressant antibiotic therapy, the majority of these patients continue to have chronic bacteriuria and suppressant therapy often leads to colonization with more resistant strains. Children on CIC who are clinically well without evidence of pyelonephritis or reflux require no treatment for chronic bacteriuria. Cystoscopy holds no value in this circumstance. Sterile intermittent catheterization has not been shown to decrease bacteriuria consistently when compared to clean CIC. Intravesical antibiotics are also uncertain in terms of benefit in this circumstance and are not even considered unless the child is suffering consequences of recurring symptomatic UTI and has failed other approaches.

136. A 24-year-old infertile man has a normal physical examination, serum testosterone of 340 ng/dl and isolated oligospermia with normal volume on two semen analyses. His wife's evaluation is normal. The next step is:
A: repeat semen analysis.
B: antisperm antibody testing.
C: scrotal ultrasound.
D: intrauterine insemination.
E: adoption.
Answer= D.
The patient has oligospermia. No correctable abnormalities are present. Further evaluation with ultrasonography for a subclinical varicocele is not helpful. Since two semen analyses show the same defects, a repeat semen analysis will be of no value. If the two analyses were discrepant, another specimen would be useful. No indication for antisperm antibody testing is present. Intrauterine insemination is most effective for cervical-factor infertility or isolated oligospermia.

137. A 66-year-old woman develops lung and lymph node metastasis two years following radical nephrectomy for a T3bN0M0 grade 3 clear cell RCC. Despite high-dose IL-2, she

has disease progression at nodal sites six months later. Her performance status is excellent. The next step is:
A: palliative care.
B: sorafenib.
C: gemcitabine and 5-FU.
D: combination IL-2 and interferon alpha.
E: allogenic stem cell transplant.
Answer= B.
The discovery of the VHL gene and subsequent elucidation of the dysregulated tumor pathways in RCC has led to targeted therapy for this disease. Recently the FDA has approved sorafenib (Nexavar) and sunitinib (Sutent) for the second-line treatment of advanced RCC after failed cytokine therapy. The fast- track approval of sorafenib was in large part due to the preliminary results of a large randomized trial conducted in over 100 centers in 19 countries. In a planned preliminary analysis, sorafenib doubled the progression-free survival compared to placebo and was associated with a greater than 50% reduction in the risk of progression. The trial was designed to determine whether treatment provides an overall survival benefit and analysis of this endpoint is premature. Although major tumor responses including complete responses are rare with this drug, the majority of patients exhibit tumor regression. These drugs are synthetic small molecules that inhibit a number of kinases important in tumor cell proliferation and tumor angiogenesis. Supportive care and hospice referral would be premature in this patient. Although gemcitabine based-chemotherapy regimens show activity and are being studied in kidney cancer, their role is in patients with rapidly progressing disease and unusual histologies including sarcomatoid, collecting duct, and renal medullary carcinoma. Other cytokine therapy following failure of high-dose IL-2 is rarely beneficial. Allogeneic stem cell transplant to produce a graft vs. tumor response is highly experimental and conducted in only a few centers in preliminary clinical trials.

138. An increased risk of genitourinary abnormality in the neonate is associated with:
A: newborn serum creatinine of 1.2 mg/dl.
B: maternal insulin-dependent diabetes.
C: maternal hypertension.
D: no urine from infant in first 20 hours.
E: maternal history of multicystic kidney.
Answer= B.
The neonatal serum creatinine of 1.2 mg/dl reflects maternal creatinine and is not a matter of concern. Maternal diabetes mellitus (insulin-dependent) poses an increased risk for sacral agenesis and bladder dysfunction in the infant. Maternal hypertension is associated with some risk of renal vein thrombosis. Some infants do not pass urine in the first 24 hours. At 20 hours, no studies are indicated in the absence of other problems. Multicystic kidney is congenital, but not hereditary.

139. The factor that most likely predicts stent failure in patients with ureteral obstruction due to extrinsic compression is:
A: pain.
B: bilateral obstruction.
C: malignant obstruction.
D: distal ureteral obstruction.
E: the presence of a vascular graft.
Answer= C.
Extrinsic ureteral obstruction is associated with stent failure in nearly half of patients within a year. A recent study of 101 patients treated with indwelling stents revealed extrinsic obstruction due to cancer; renal insufficiency (serum creatinine > 1.3 mg/dl); and obstruction following XRT or chemotherapy were predictors of stent failure. Patients with metastatic disease requiring systemic therapy may be best served with a percutaneous nephrostomy rather than a ureteral stent. Other alternatives, such as an extra-anatomic nephrovesical stent, can be considered as well.

140. A 62-year-old man with minimal LUTS prior to treatment develops urinary retention three weeks after undergoing 125I brachytherapy for prostate cancer despite tamsulosin 0.8 mg daily. Over the next nine
months, he fails repeated voiding trials, refuses to perform CIC and has an indwelling urethral catheter. His prostate volume is 25 gm. The next step is:
A: finasteride.
B: leuprolide acetate.
C: suprapubic catheter.
D: TUMT.
E: TURP.
Answer= E.
LUTS are common following brachytherapy and often seem to coincide with the half-life of the isotope (60 days for iodine-125 and 17 days for palladium-103). Usually these symptoms improve over time and respond to alpha-blocker therapy. Patient selection for brachytherapy is extremely important to avoid severe voiding dysfunction and urinary retention. Patients with significant pretreatment symptoms despite medical therapy are poor candidates for an implant as they are much more likely to have severe post-implant LUTS and a higher risk for urinary retention. In brachytherapy series, 2-8% of patients require TURP often within the first six months postimplant because of urinary retention. TURP should be delayed at least three months after the initial seed implantation. The resection should not be aggressive with preservation of apical tissue. Prior to three months, retention is best managed by CIC. Finasteride and leuprolide acetate would require months before any possible benefit and would not be effective in a patient with a small gland. A suprapubic catheter would provide drainage but has the associated problems of infection and bladder irritation. TUMT is contraindicated following radiation therapy.

141. The nerve that may be easily trapped by the tacking sutures during a psoas hitch procedure is the:
A: genitofemoral.
B: ilioinguinal.
C: iliohypogastric.
D: femoral.
E: lateral femoral cutaneous.
Answer= A.
The genitofemoral nerve penetrates the body of the psoas muscle at about L3/L4 where it travels caudally along its surface and is vulnerable to suture injury. The other nerves are all lateral or dorsal to the psoas muscle and removed from the operative site.

142. A 34-year-old man has azoospermia with a seminal volume of 2 ml and pH of 8.3. Physical exam shows small soft testicles each with a normal vas and epididymis. FSH is elevated to 3.5 times normal. The next step is:
A: semen fructose determination.
B: karyotype and Y chromosome microdeletion assay.
C: fine needle testicular aspiration.
D: scrotal exploration with testis biopsy and vasography.
E: testicular microdissection and cryopreservation of sperm.
Answer= B.
Azoospermic men have an increased incidence of chromosomal abnormalities. Patients thought to have non-obstructive azoospermia should have both a karyotype and Y-chromosome microdeletion analysis. Of the three types of Y chromosome deletions, types a and b rarely if ever have sperm production in the testicles. Type c deletions have patchy sperm production in the testicles some of the time. The latter may benefit from testicular sperm retrieval but the types a and b deletions will likely not. With an FSH three times

normal this patient will not have obstructive azoospermia and thus scrotal exploration and a vasogram are not indicated. Fine needle testicular aspiration for diagnosis is unnecessary. Both needle aspiration and testicular microdissection and cryopreservation of sperm are premature without prior genetic testing. In addition needle aspiration is less successful in retrieving sperm from non-obstructed azoospermic patients than open testicular sperm extraction. Semen fructose determination may demonstrate a low fructose concentration in patients with ejaculatory duct obstruction or congenital bilateral absence of the vas deferens. Both of these conditions are associated with low volume acidic semen specimens which are not present in this patient.

143. A 52-year-old woman with a recently diagnosed melanoma undergoes a staging abdominal CT scan that reveals a round 2.8 cm cystic mass in the right kidney and a normal left kidney. On pre- and post- contrast images, the mass measures 71 and 74 Hounsfield units, respectively. The next step is:

A: observation.
B: renal MRI scan.
C: PET scan.
D: needle biopsy.
E: partial nephrectomy.
Answer= A.

This rounded non-enhancing lesion of the kidney is consistent with a hyperdense cyst. Hyperdense cysts are characteristically more dense than the kidney on noncontrast imaging (typically up to 80 HU) and do not enhance upon contrast administration. In this case, the increase in density of 3 HU is not significant and suggests a nonenhancing lesion. The history of melanoma should lead the clinician to be suspicious of a metastatic lesion, and if the mass were enhancing, needle biopsy would be indicated prior to resection.

144. A five-day-old boy has vomiting and dehydration. His serum CO2 is 12 mEq/l, K+ 5.5 mEq/l, and creatinine 2.2 mg/dl. A VCUG demonstrates posterior urethral valves and bilateral Grade 4 vesicoureteral reflux. The next step is:

A: percutaneous cystostomy.
B: percutaneous nephrostomies.
C: valve ablation.
D: urethral catheter drainage.
E: cutaneous vesicostomy.
Answer= D.

The management of the infant with a PUV depends on the severity of the obstruction and the degree of any renal dysplasia present. The main problems arise in management of the infant with severe obstruction and compromised renal function with dehydration, acidosis, and sepsis. Initially, a small infant feeding tube, placed transurethrally, can provide bladder drainage. Once stabilized, valve ablation can be undertaken. Vesicostomy is reserved for infants who cannot undergo primary valve ablation because of the inadequate size of their urethra or for very small, unstable infants. If initial bladder level drainage does not result in satisfactory clinical improvement, temporary supravesical diversion may be considered, however the vast majority of these patients will be found to have renal dysplasia, not urethral vesical obstruction as the etiology the penile of the persistently elevated creatinine.

145. A 28-year-old woman has a history of recurrent urolithiasis. A spiral CT scan shows nephrocalcinosis and a 3 mm right distal ureteral stone. Serum potassium is 3.2 mEq/l, CO2 18 mEq/l, creatinine 0.8 mEq/l. Urine pH is 6.0. The most likely stone composition is:

A: uric acid.
B: cystine.
C: magnesium ammonium phosphate.
D: calcium phosphate.
E: hydroxyapatite.
Answer= D.

Clinically, RTA is associated with recurrent urolithiasis, calcium phosphate stones, medullary sponge kidney, nephrocalcinosis, hypocitraturia, hypokalemia, metabolic acidosis and urine pH greater than 5.5. Hypocitraturia is the most important metabolic factor for stone formation in type 1 (distal) RTA although hypercalciuria can occur. Potassium citrate (or bicarbonate) corrects the systemic acidosis and normalizes urinary citrate. If hypercalciuria persists in spite of alkali therapy, thiazides should be added.

146. The optimal stoma site for the of an ileal conduit is:

A: 2 cm superior and lateral to the umbilicus.
B: 5 cm lateral to the incision at the belt line.
C: in the mid-axillary line lateral to the umbilicus.
D: through the rectus muscle at the peak of the fat roll.
E: lateral to the rectus muscle at the peak of the fat roll.
Answer= D.

The site of the stoma should be selected preoperatively. This is done with the patient in a sitting and supine position. Care is taken to place the stoma over the rectus muscle at least 5 cm from the planned incision line. The point chosen should be well away from any skin creases, scars, the umbilicus, belt lines or bony prominences. All stomas should be placed through the belly of the rectus muscle located at the peak of the infraumbilical fat roll. If the stoma is placed lateral to the rectus sheath, a parastomal hernia is likely to occur.

147. The radionuclide that has the best tissue to background ratio is:

A: 99mTc-DTPA.
B: 99mTc-MAG-3.
C: 99mTc-DMSA.
D: 99mTc-glucoheptonate.
E: 123 I-iodohippuran.
Answer= C

DMSA is bound to renal proximal tubule cells in progressive amounts over three to six hours. Over time, there will therefore be less background activity and a higher tissue to background ratio. This is particularly important with poorly functioning kidneys. MAG-3, DTPA and Hippuran are all excreted. Functional assessment is done in the first three minutes after injection, during which time there is considerable background activity. Glucoheptonate is a hybrid that is both excreted and bound.

148. A 45-year-old man has recurrent calcium oxalate nephrolithiasis. Serum calcium and electrolytes are normal, while 24-hour urine demonstrates hypercalciuria. His diet should consist of:

A: high animal protein, normal sodium, low calcium.
B: low animal protein, low sodium, low calcium.
C: low animal protein, low sodium, normal calcium.
D: normal animal protein, low sodium, low calcium.
E: normal animal protein, normal sodium, low calcium.
Answer= C.

Epidemiologic studies have demonstrated that low calcium and increased animal protein consumption place an individual at risk to develop nephrolithiasis. Metabolic studies have demonstrated that increased sodium consumption results in increased calcium excretion and low calcium intake results in increased oxalate excretion. Borghi and associates studied men with recurrent calcium oxalate nephrolithiasis associated with hypercalciuria. Patients were randomized to one of the following diets: 1) low animal protein, 2) low calcium, 3) low sodium, and 4) normal sodium. Only patients on low sodium and normal calcium diet had a decreased incidence of stones. This finding, plus the knowledge that increased intake of

a animal protein increases the risk of stones, results in the recommendation that patients with hypercalciuria should be placed on diets low in sodium and animal protein with normalcalcium intake.

149. When comparing post-prostate biopsy hemorrhage to prostate cancer, the signal intensity of prostate cancer on T1 and T2 weighted MRI images is:

A: high T1 and high T2.
B: low T1 and high T2.
C: high T1 and low T2.
D: low T1 and low T2.
E: intermediate T1 and high T2.
Answer= D

Prostate MRI scan, especially with combined endorectal and phase-array coils, is used in prostate cancer staging with up to 82% accuracy. The T1- and T2-weighted images are helpful in differentiating between postbiopsy hemorrhage, which presents as a high T1 and a low T2 lesion, and prostate cancer, which presents as a low T1 and low T2 lesion.

150. Stabilization of the myocardium during life-threatening hyperkalemia associated with loss of P waves and widening of the QRS complex on the electrocardiogram is best accomplished using:

A: I.V. calcium gluconate.
B: I.V. NaHCO3.
C: 10% glucose with regular insulin.
D: potassium exchange resin with sorbitol.
E: hemodialysis.
Answer= A

Severe hyperkalemic cardiotoxicity must be treated immediately, not by lowering serum potassium concentration alone but preventing cardiac excitability and antagonizing the cardiotoxic effects of hyperkalemia. Thus, I.V. calcium gluconate is the initial treatment of choice. This must be followed by measures to immediately lower serum potassium since the duration of calcium effects are brief. Bicarbonate and glucose should be given next, but they are short-acting and exchange resins/dialysis

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1. A 66-year-old diabetic man with peripheral neuropathy and a 25 gm palpably normal prostate has urinary frequency, urgency, and urge incontinence. He voided 300 ml with a PVR of 380 ml. Urodynamic studies reveal a maximum uroflow of 8 ml/sec, a voiding pressure of 88 cm H2O, and a bladder capacity of 850 ml with decreased bladder sensation. Cystourethroscopy reveals mild trilobar prostatic enlargement. The most effective treatment is:

A: CIC.
B: CIC and oxybutynin.
C: neuromodulation.
D: tamsulosin.
E: TURP.
Answer= E.

Typically described urodynamic findings in diabetics include: impaired bladder sensation, increased cystometric capacity, decreased bladder contractility, impaired uroflow, and later, increased residual urine. The main differential diagnosis in men is the presence or absence of bladder outlet obstruction. In this patient, urodynamic data document bladder outlet obstruction as well as probable diabetic cystopathy. Cystourethroscopy excluded urethral stricture; thus, prostatic obstruction is the likely etiology. CIC with or without medications, is an acceptable treatment but in the face of prostatic obstruction, TURP will alleviate the symptoms provided the patient does timed voiding to prevent overdistention. Neuromodulation is not indicated in a patient with bladder outlet obstruction. Given the degree of bladder outlet obstruction and the amount of residual urine, tamsulosin is unlikely to be as effective as TURP.

2. Placement of a ureteral stent in an unobstructed system will result in:

A: increase in ureteral contractility.
B: decrease in ureteral contractility.
C: atrophy of the ureteral mucosa.
D: atrophy of the ureteral smooth muscle.
E: decrease in intrapelvic pressure.
Answer= B.

A number of changes occur after placement of a ureteral stent including: hyperplasia and inflammation of the urothelium, smooth muscle hypertrophy, increased intrapelvic pressure, a decrease in ureteral contractility and vesicorenal reflux. Decreased ureteral contractility does contribute to vesicorenal reflex, which may have implications in infected systems in the setting of bladder outlet obstruction.

3. A 25-year-old man has a thickened, indurated fat mass excised from his spermatic cord at the time of inguinal hernia repair. Final pathology reveals low grade liposarcoma with negative margins. The next step is:

A: observation.
B: inguinal orchiectomy.
C: inguinal orchiectomy and RPLND.
D: inguinal orchiectomy and hemiscrotectomy.
E: inguinal/abdominal radiation.
Answer= B.

Liposarcoma of the paratesticular structures is most often associated with the spermatic cord. it is a rare tumor that is usually well-differentiated. As with all sarcomas of the paratesticular region, inguinal orchiectomy with high ligation of the spermatic cord with inguinal orchiectomy is generally advised to minimize the chance of local recurrence. Because of the low likelihood of hematogenous or lymphatic spread in a low-grade sarcoma, additional radiation or chemotherapy would not likely be necessary. This tumor has a low likelihood of complete response to primary radiotherapy and therefore it is not a reasonable option. Hemiscrotectomy is unnecessary with no violation of the scrotum.

4. Angiotensin II causes blood pressure elevation by its effect on:

A: peripheral vascular tone and cardiac rate. B: peripheral vascular tone and blood volume. C: blood volume and cardiac output. D: blood volume and renin substrate. E: the juxtaglomerular apparatus. B: "peripheral vascular tone and blood volume." was the correct answer.

Renin is a proteolytic enzyme secreted in the juxtaglomerular apparatus of the kidney and is physiologically inert. Angiotensinogen is a plasma globulin substrate of hepatic origin, upon which renin acts to produce angiotensin I. Angiotensin I is a decapeptide which is also physiologically inert. Angiotensin I is acted upon by converting enzyme to produce the octapeptide angiotensin II. Angiotensin II is the first effector hormone of the renin system, and is the only substance directly responsible for elevation in blood pressure in patients with renovascular hypertension. It acts upon the smooth muscle of the peripheral vasculature to cause vasoconstriction, and also stimulates the zona glomerulosa to produce aldosterone which causes sodium retention in the distal tubule and thus produces volume expansion.

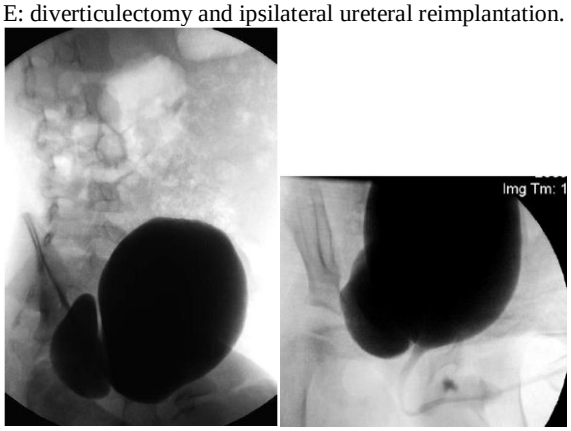
5. Serum osmolality is determined by utilizing a formula which involves the sum of which three osmotically active substances in the blood:

A: sodium, potassium, glucose.
B: sodium, chloride, urea nitrogen.
C: sodium, glucose, urea nitrogen.
D: albumin, glucose, creatinine.
E: albumin, globulin, urea nitrogen.
Answer= C.

Osmolality is estimated by computing the sum of serum sodium (mEq/l) x 2, glucose (mg/dl)/18 and urea (mg/dl)/3. These three solutes are the major contributers to osmolality with creatinine, magnesium, phosphate and potassium contributing less. The chloride contribution is taken into account by doubling the sodium concentration.

6. A two-year-old boy has foul smelling urine and dysuria. A urine culture grew pan- sensitive coagulase negative Staphylococcus. His symptoms resolved with antibiotics and a renal ultrasound is normal. A VCUG is shown. The next step is:

A: prophylactic antibiotics.
B: behavioral modification.
C: transurethral incision of valves.
D: endoscopic puncture.
E: diverticulectomy and ipsilateral ureteral reimplantation.



Answer= E

The imaging reveals a large congenital right sided bladder diverticulum. There is no evidence of bladder outlet obstruction or valves. This is a source of stasis (incomplete bladder emptying) that will not spontaneously resolve. Smaller periureteral diverticula are associated with dysfunctional elimination and are not treated surgically but in this case diverticulectomy is indicated. Based upon the size of the diverticulum, this child will almost certainly have recurrent infections. As such, prophylactic antibiotics or observation are not appropriate options in a pediatric patient. The diverticulum arises cephalad and lateral to the ureteral orifice. The ureter and diverticulum are intimately associated. The ipsilateral ureter should be reimplanted if it is near or included in the diverticulum whereas a diverticulum on the lateral bladder wall or dome (urachal diverticulum) can be resected without ureteral reimplantation. Both can be performed extravesically with entry into the bladder only when the diverticulum is entered.

7. A 22-year-old man involved in an MVC is evaluated for multi-system trauma. CT scan shows complete enhancement of both kidneys, a 2 cm laceration in the lower pole of the left kidney, and a left perinephric hematoma. A 3 cm splenic laceration that does not extend to the hilum is also seen. He is managed with observation. Ten days later, he develops acute abdominal pain. On physical examination, he is diaphoretic and has a rigid abdomen. His temperature is 38.5°C, pulse 120/min, and blood

pressure is 90/70 mm Hg. This clinical condition is most likely due to:
A: delayed sepsis.
B: persistent urinary extravasation.
C: delayed renal hemorrhage.
D: delayed splenic hemorrhage.
E: missed bowel injury.
Answer= D.
Associated organ injury is common in patients with renal trauma. Nonrenal trauma accounts for the majority of the morbidity and mortality that occurs in such patients. As in the case described, CT allows staging of renal injury and detection of associated organ injury. Nonoperative management of both splenic and renal injury is possible in selected patients with renal injuries associated with limited extravasation and bleeding. Development of delayed bleeding, infection, or hypertension (related to the renal injury) is unlikely. Those cases where there are nonviable renal segments are more likely to require delayed laparotomy. Although splenic lacerations may be managed nonoperatively, up to 40% of those with Type II injuries (splenic laceration not extending to hilum) may require operative intervention. Although either injury described in the case presented may require delayed laparotomy, the splenic injury is more likely. The finding of the rigid abdomen suggests an intraperitoneal process. A missed bowel injury would present within the first several days after injury.

8. A 24-year-old man with azoospermia and an ejaculate volume of 0.5 ml has a palpably normal left vas deferens, a nonpalpable right vas deferens, and a normal DRE. Both testes measure 30 ml. The most useful diagnostic study for infertility is:
A: TRUS.
B: serum testosterone.
C: post-ejaculatory urinalysis.
D: testicular biopsy.
E: seminal fructose.
Answer= A.
The differential diagnosis for low ejaculate volume azoospermia is vasal agenesis, ejaculatory duct obstruction, and ejaculatory dysfunction. The presence of unilateral vasal agenesis on physical examination strongly suggests the presence of a congenital anomaly with contralateral segmental vasal atresia. TRUS will help differentiate between a potentially treatable ejaculatory duct obstruction and, more likely, absence or hypoplasia of the contralateral seminal vesicle and ampullary vas deferens. Patients with vasal agenesis do not require either a serum FSH or testicular biopsy unless they have testicular atrophy or another historical risk factor. Seminal fructose does not help differentiate between these two disorders; it is absent in both.

9. A 47-year-old man has palpable right inguinal adenopathy following partial penectomy for a 4 cm T2 squamous cell cancer. Needle biopsy of a right inguinal lymph node reveals metastatic cancer. The pelvic lymph nodes are radiologically normal. The next step is:
A: antibiotic therapy and reexamination.
B: pelvic node dissection.
C: right superficial inguinal node dissection.
D: right superficial and deep, left superficial inguinal node dissection.
E: bilateral superficial and deep inguinal node dissection.
Answer= D.
Men with invasive penile cancer are at high risk of inguinal metastasis. Those men who present with palpable inguinal lymph nodes often have an inflammatory or infectious etiology due to poor hygiene. In these patients, two approaches can be employed. Patients can be treated with a two to four-week course of antibiotic therapy to assess for resolution of lymphadenopathy. Alternatively, fine needle aspirate of suspicious nodes can be performed at presentation. If positive, this removes the need for delayed therapy due to antibiotics. Men with palpable nodes proven positive for metastatic disease should undergo superficial and deep inguinalnode dissection as those with limited nodal disease are found to have up to an 80% five year disease-free survival with complete resection of nodal disease. Owing to the high rates of cure achieved with aggressive resection in limited nodal disease, many have advocated early dissection in men with invasive penile cancer and no palpable lymphadenopathy. In these men, dissection can be limited to nodes superficial to the fascia lata unless positive on evaluation. In men with palpable disease on one side, contralateral superficial dissection is mandatory owing to the high rate of lymphatic cross-over. In these cases, contralateral metastasis is noted in 50% of patients.

10. The best predictor of immediate graft function following living donor renal transplantation is:
A: warm ischemia time.
B: cold ischemia time.
C: renal revascularization time.
D: total ischemia time.
E: donor kidney urine output just prior to nephrectomy.
Answer= E.
While both cold (storage) and warm (anastomotic) ischemic times have important roles in determining immediate function for deceased donor renal transplant recipients, these times are negligible in living donor transplantation and rarely affect immediate graft function. The single best determinant of immediate function in live donor transplantation is the functional status of the kidney at the moment it is removed from the donor.

11. A 10 Fr nephrostomy tube was placed uneventfully to drain a pyonephrotic kidney. Follow-up nephrostogram reveals a 6 cm staghorn calculus. The percutaneous nephrostomy tube enters directly into the renal pelvis. At time of percutaneous nephrolithotomy, optimal access is obtained via:
A: dilating the established nephrostomy tract.
B: a new percutaneous tract - middle anterior calyx.
C: a new percutaneous tract - middle posterior calyx.
D: a new percutaneous tract - inferior anterior calyx.
E: a new percutaneous tract - inferior posterior calyx.
Answer= E.
Percutaneous renal access into the collecting system should be as peripheral as possible to help avoid serious hemorrhage. Direct puncture into an infundibulum or into the renal pelvis substantially increases the risk of hemorrhage. The temptation to utilize a previously placed nephrostomy tube in a suboptimal location should be abandoned. A new percutaneous access should be established. Staghorn calculi are best approached through polar access. Inferior or superior pole entry optimizes access to most of the collecting system. An interpolar puncture hinders entry into the superior or inferior calyceal groups. A posterior calyceal puncture decreases the need to torque instruments into the collecting system and helps reduce hemorrhage and eases stone extraction.

12. The most useful parameter to assess the malignant risk of an incidental adrenal mass is tumor:
A: grade.
B: histology.
C: isointensity on MRI scan.
D: metabolic activity.
E: size.
Answer= E.
Incidentally discovered adrenal masses have been reported in up to 4.4% of abdominal CT scans, most commonly in female patients between the ages of 50 and 70 years. A small minority of adrenal masses will be malignant, most often due to adrenocortical carcinoma or metastases to the adrenal gland. The primary indication for surgery is suspicion of malignancy based on size criteria, radiographic findings, or interval growth documented on follow-up imaging. The most useful parameter for assessing risk of malignancy is size; 5-6 cm is generally considered worrisome enough for surgical excision. Tumor histology and grade do not readily predict metastatic behavior. A high signal intensity ratio on T2 weighted MRI images suggests that the lesion is not a benign adenoma. Metabolic activity is common in both benign and malignant adrenal masses.

13. A 65-year-old post-menopausal woman with decreased bone density develops her third calcium oxalate renal calculus in five years. Metabolic evaluation reveals a mildly elevated urinary calcium after calcium loading, consistent with Type I absorptive hypercalciuria. The most appropriate treatment is:
A: sodium cellulose phosphate.
B: orthophosphate.
C: hydrochlorothiazide.
D: potassium citrate.

E: magnesium oxide.
Answer= C.
Sodium cellulose phosphate can restore normal calcium excretion in those with absorptive hypercalciuria. However, it can lead to a negative calcium balance. Thiazides are appropriate treatment for those with mild to moderate absorptive hypercalciuria and those at an increased risk of bone disease such as post- menopausal women and growing children. Thiazide therapy induces an increase in bone density. Thiazides may lose their hypocalciuric effect after two to four years, and patients may be switched to sodium cellulose phosphate for a short period of time. Orthophosphates are indicated for the management of absorptive hypercalciuria, Type III, where a renal leak of phosphate is thought to stimulate 1,25-(OH)2D synthesis. Orthophosphates inhibit this synthesis. Potassium citrate will alkalinize the urine but will not affect the serum or urinary calcium. Magnesium oxide may bind oxalate in the gut but will no effect on urinary calcium.

14. In patients with androgen-independent metastatic prostate cancer, the median improvement in overall survival of docetaxel + prednisone every three weeks compared to mitoxantrone + prednisone is:
A: 2.5 months.
B: 4.5 months.
C: 6 months.
D: 12 months.
E: 18 months.
Answer= A.
Docetaxel is currently the only FDA-approved agent that has been shown to prolong survival in men with androgen-independent metastatic prostate cancer. In the pivotal trial of docetaxel, patients who received an every three week administration of the drug had a median survival of 18.9 months, as opposed to a 17.3 month median survival for patients who received docetaxel on a weekly basis and 16.4 months (difference of 2.5 months) for those who received mitoxantrone. The p-value comparing docetaxel every three weeks to mitoxantrone (which does not prolong survival but improves quality of life) was p=0.009. These findings led the FDA to approve docetaxel for use in these patients.

15. A 24-year-old man elects to undergo a modified right template RPLND following right radical orchiectomy for stage I NSGCT. The left limit of the dissection should be:
A: the medial edge of vena cava.
B: the medial edge of the aorta.
C: the mid-aorta.
D: the lateral edge of the aorta.
E: the medial edge of the left ureter.
Answer= E.
Lymphatic spread of testicular cancer to the contralateral retroperitoneum is rare with left-sided tumors, but more common with right sided tumors. To this end, the contralateral margin differs for left- and right-sided modified RPLND templates. For left sided dissections, the right margin is the lateral edge of the IVC, primarily to ensure collection of the interaortacaval lymph nodes. On the right side, the dissection should be carried out further, optimally to the left ureter, as occasionally there will be involvement of the para-aortic lymph nodes in these patients. Although some authors have suggested that bilateral modified RPLND should be performed in all patients with right-sided tumors, the additional dissection down the left common iliac artery has not been shown to be of any additional benefit.

16. One month after L5 laminectomy, a 30-year-old woman develops lower extremity weakness, a residual urine of 300 ml, and an intermittent urinary stream. Videourodynamics demonstrates detrusor-sphincter dyssynergia. The most likely explanation is:
A: pseudodyssynergia.
B: recurrent lumbar disk herniation.
C: cauda equina syndrome.
D: undiagnosed multiple sclerosis.
E: permanent nerve injury from disk.
Answer= D.
The urodynamic finding of detrusor external sphincter dyssynergia (DESD) indicates that a suprasacral spinal lesion is present. This cannot be explained by a recurrent hernia or permanent injury to L5. The most likely supraspinal lesion in a woman this age is multiple sclerosis.

17. Bacterial biofilms forming on implants and foreign bodies in the urinary tract are comprised of a(an):
A: surface film of compact microorganisms.
B: conditioning film comprised of carbohydrate molecules.
C: linking film from which plank-tonic organisms can arise and spread.
D: accumulation of microorganisms and their extracellular products forming a structured community.
E: layer of mucopolysaccharide excreted by bacterial cells to protect them from WBC infiltration.
Answer= D.
Bacterial biofilms arise from bacterial adherence and growth of bacteria on solid surfaces and foreign bodies in the urinary tract. Bacteria form biofilms in a variety of environments, particularly on implants and stents in the urinary tract. A biofilm is defined as the accumulation of microorganisms and their extracellular products to form a structured community on a surface. Factors that influence bacterial adhesion to devices include the biomaterial surface characteristics, bacterial surface features, and the presenting clinical condition.

18. A 25-year-old man has inadequate erections since sustaining a pelvic fracture in a MVC two years ago. After a successful urethral stricture repair, he denies any difficulty with orgasm and ejaculation. Intracavernosal injection of 15 ug of prostaglandin E1 produces a soft erection. The next step is:
A: infusion cavernosography.
B: pelvic/pudendal arteriography.
C: infusion cavernosometry.
D: intracavernosal injection of 30 ug of prostaglandin E1.
E: color Doppler study of penile arteries.
Answer= E.
This patient most likely has either an arterial or a neurologic injury to explain his erectile difficulty. A neurologic lesion is less likely because of his failure to respond with an erection to a reasonable dose of prostaglandin E1. Patients with neurogenic injuries frequently respond to very low doses of intracavernosal agents. The major clinical question which needs to be answered is whether or not this patient has an arterial injury. Infusion cavernosography and infusion cavernosometry are studies which demonstrate the extent and site of corporovenous leakage. Fifteen ug of prostaglandin E1 is a reasonable dose of drug to administer and increasing the dose to 30 ug would likely not produce more information. The study of choice to determine the presence of arterial disease in this clinical situation is a color Doppler study of the penile arteries before and after the intracavernosal injection of vasoactive drugs. Only after arterial disease has been diagnosed and only when operative revascularization is under consideration should pelvic/pudendal arteriography be performed.

19. Three weeks after a retropubic bladder neck suspension, a 40-year-old woman develops pelvic and suprapubic pain associated with temperatures to 38.5°C. She experiences difficulty adducting her thighs and has pain on palpation of her symphysis pubis. The most likely diagnosis is:
A: osteitis pubis.
B: osteomyelitis of pubis.
C: obturator nerve injury.
D: urinary extravasation.
E: pelvic abscess.
Answer= A.
This patient exhibits classic signs and symptoms of osteitis pubis. Pelvic and suprapubic pain, fever, and difficulty with thigh adduction are classic findings. Osteitis pubis has been reported to occur in up to 2.5% of women who have undergone the retropubic bladder neck suspension. Pubic osteomyelitis is possible but is far less common than osteitis pubis. Obturator nerve injury (usually secondary to retractors) can occur following cystourethropexy but does not present with symptoms three weeks postoperatively. Urinary extravasation would be very rare three weeks postoperatively. The signs and symptoms are much more in keeping with osteitis pubis than they are with pelvic abscess.

20. A 19-year-old woman is treated with ampicillin for a UTI and develops a pruritic groin rash. Physical examination reveals poorly marginated, red patches on her inner thighs, inguinal folds, and labia. Satellite papules and pustules are scattered at the periphery of the inflammatory process. The most likely diagnosis is:

A: fixed drug reaction.
B: contact dermatitis.
C: candidiasis.
D: molluscum contagiosum.
E: lichen planus.
Answer= C.

Infection of the crural folds with Candida albicans and other Candida species is a very common condition. In women, Candida species are normal inhabitants of the gastrointestinal tract and are commonly present asymptomatically in the vagina. With a constant source of these organisms so nearby, it is not surprising that they frequently spread to the cutaneous aspects of the groin. The hallmark of cutaneous candidiasis is that of bright red inflammation. The initial changes occur at the apex of the crural fold; subsequently, the inflammatory plaque expands in a radial fashion to all surrounding skin. Generally small pustules overlying the red plaques can be identified, and sometimes, satellite lesions are found as solitary papulopustules separate from, but adjacent to the larger primary plaque. The degree to which pruritus is present varies greatly, but itching can be quite severe at times. A clinical diagnosis can be confirmed by culture. Alternatively, a KOH examination is useful if intact pustules are present. Fixed drug eruptions are typically circular hyperpigmented lesions. Contact dermatitis would not be expected to be bilateral. Molluscum contagiosum occurs primarily in children and has a different appearance, although a sexually transmitted form exists. Lichen planus has violacious flat topped papules and small white lesions on the genitalia.

21. The prostate biopsy technique that samples the anterior prostate gland most effectively is the:

A: 10-core biopsy.
B: 12-core biopsy.
C: saturation biopsy.
D: transurethral biopsy.
E: transperineal biopsy.
Answer= E.

Traditional 10-core, 12-core, and even saturation biopsies utilize a transrectal approach, which limits access to the anterior prostate. Under regional or general anesthesia, the transperineal approach uses a template system to sample the prostate. This grid system is similar to the one used for brachytherapy. The advantage to the transperineal approach is its optimal access to the anterior and apical gland, particularly in high-risk patients with prior negative biopsies. The 10- core, 12-core, and saturation biopsy are most apt at sampling the peripheral zone.

22. Patients with polycystic kidney disease, pain, azotemia, and hypertension who undergo laparoscopic marsupialization of their cysts will most likely experience:

A: deterioration of renal function.
B: deterioration of blood pressure control.
C: improvement in renal function.
D: improvement in blood pressure control.
E: relief of pain.
Answer= E.

Patients with autosomal dominant polycystic kidney disease (ADPKD) may have intractable cyst pain. Standard practice has been to attempt percutaneous drainage of affected cysts, and if unsuccessful, to proceed with open surgical drainage. More recently laparoscopic renal cyst marsupialization has been performed for painful ADPCKD. The results document prolonged pain relief without significant long- term effects on renal function or blood pressure. There may be some improvement in blood pressure, but it is transient.

23. A 63-year-old woman has lethargy and joint pain four years following sigmoid neobladder creation. Serum studies reveal bicarbonate 20mEq/l, calcium 9.1 mg/dl, alkaline phosphatase 249 U/l, hematocrit of 34%. The next step is:

A: oral calcium and Vitamin D.
B: oral magnesium and Vitamin D.
C: oral calcium and potassium citrate.
D: intramuscular Vitamin B12.
E: oral bisphosphonate.
Answer= C.

Osteomalacia occurs when mineralized bone is reduced and the osteoid component becomes excessive. Osteomalacia has been reported in patients with all forms of urinary diversion but is most common in colonic continent diversion and especially in postmenopausal women. The metabolic acidosis is buffered by the bone with release of bone calcium. Correction of acidosis and calcium supplementation will result in symptomatic relief and restoration of bone density. Major alterations in serum bicarbonate are not usually present and calcium is usually low normal. Patients who develop osteomalacia generally complain of lethargy; joint pain, especially in the weight-bearing joints; and proximal myopathy. The alkaline phosphatase level is elevated. Although bisphosphonates will decrease bone resorption they do not address the root cause of the problem. Vitamin B12 deficiency is not seen in colonic urinary diversion.

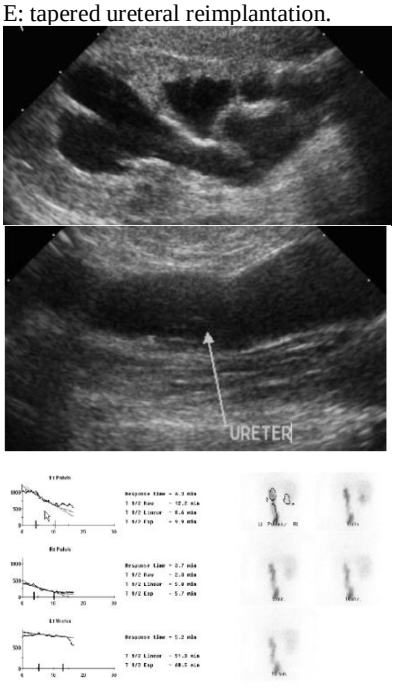
24. A 50-year-old man with end-stage polycystic kidney disease is on chronic hemodialysis. His pre-dialysis potassium is consistently in excess of 5.6mEq/l. He is dialyzed three times per week for 4-1/2 hours per treatment. The most likely cause of his hyperkalemia is:

A: dietary indiscretion.
B: chronic alkalosis.
C: gastrointestinal bleeding.
D: inadequate dialysis.
E: adrenal insufficiency.
Answer= A.

Hyperkalemia is usually not a problem for patients with chronic renal failure. Even end-stage kidneys are capable of some potassium excretion, and significant amounts of potassium may be lost via the intestinal tract. Potassium is restricted in a chronic renal failure diet and the associated protein restriction also curtails potassium intake. While all of the answers are possibilities, excessive intake of potassium is the most common cause of hyperkalemia.

25. A newborn boy with a history of left prenatal hydroureteronephrosis develops gram negative urosepsis despite prophylactic amoxicillin. VCUG is normal. Renal ultrasound and MAG-3 renal scan are shown. The differential renal function is 74/26 (right/left). The next step is:

A: observation.
B: change prophylaxis to trimethoprim-sulfamethoxazole.
C: cutaneous pyelostomy.
D: distal cutaneous ureterostomy.
E: tapered ureteral reimplantation.



Answer= D.

Gram negative sepsis in a child less than three months of age has a mortality approaching 15-20%. In an infant less than three months

of age with a gram negative UTI, there is a 30% chance of a recurrent UTI over the next six months.
In this infant with an obstructing primary megaureter and ipsilateral decreased renal function, surgical intervention is indicated. A tapered ureteral reimplantation would be technically very difficult at this age and should be deferred until older than one year of age. The preferred treatment is a low end cutaneous ureterostomy. Altering prophylaxis to sulfamethoxazole trimethoprim should not be done in an infant due to the risk of kernicterus and hematopoietic dysfunction.

26. A 36-year-old man with a T10 spinal cord injury has chronic, asymptomatic bacteriuria unresponsive to antimicrobial therapy. He is managed by CIC obtaining volumes up to 400 ml. Cystometry demonstrates detrusor areflexia with high bladder compliance. A renal ultrasound is normal except for a 4 mm calculus in the left renal parenchyma. The best method of management is:
A: reassurance.
B: localizing urine cultures.
C: urinary acidification.
D: SWL.
E: sphincterotomy and condom catheter drainage.
Answer= A.
Bacteriuria occurs in the majority of spinal cord injured patients managed by CIC. This patient's bacteriuria is not likely to originate from the small renal stone, nor would stone removal alleviate the bacteriuria. Localizing urine cultures are not necessary. The patient needs reassurance that chronic bacteriuria is not concerning, provided his urine storage pressures are low and he is symptom free. Urine acidification has not been proven to decrease the risk of bacteriuria in spinal cord injured patients. Sphincterotomy and condom catheter drainage in this patient with reasonable hand function is not an appropriate alternative, and will not reduce the incidence of bacteriuria.

27. A patient has stress urinary incontinence one year after radical retropubic prostatectomy. However, stress incontinence observed on physical examination is not documented during a Valsalva maneuver under fluoroscopy. The test was performed using a 12 Fr urethral catheter at a volume of 200 ml. The most likely explanation for the absence of demonstrable incontinence during the urodynamic test is:
A: insufficient volume instilled.
B: urethral catheter is too large.
C: involuntary bladder contraction.
D: poor Valsalva effort.
E: impaired contractility.
Answer= B.
With a stricture of the urethra or a bladder neck contracture using a catheter as small as 9 Fr may not allow urine to exit around it. Using a rectal pressure as an estimate of intra-abdominal pressure or use of a suprapubic catheter represent alternative methods. More simply, a smaller diameter catheter such as 7 Fr or less can be used.

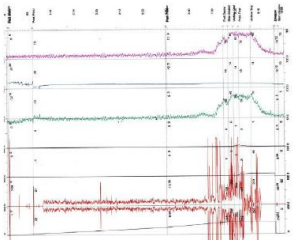
28. The most appropriate perioperative management of a patient undergoing adrenalectomy for Cushing's syndrome is:
A: hydration, alpha-blockers, and stress-dose steroids.
B: beta-blockers, stress-dose steroids and careful glycemic control.
C: potassium sparing diuretics and stress-dose steroids.
D: stress-dose steroids and careful glycemic control.
E: potassium sparing diuretics, stress-dose steroids, and careful glycemic control.
Answer= D
Patients undergoing adrenalectomy for Cushing's syndrome have an excess of corticosteroids from an adrenal adenoma or carcinoma. These patients need stress- dose steroids and careful glycemic control as they often have obesity and diabetes. Alpha-blockers and hydration are indicated perioperatively for patients with pheochromocytoma. Beta-blockers may also be necessary preoperatively for patients with pheochromocytoma if they are tachycardic after alpha-blockade. Potassium sparing diuretics are important for the perioperative management of patients with hyperaldosteronism (Conn's disease) as they often have significant hypokalemia.

29. In chronic ureteral obstruction, the glomerular filtrate exits the renal pelvis primarily by:
A: pyelosinus backflow.
B: pyelolymphatic backflow.
C: extravasation from the renal pelvis.
D: reabsorption from renal pelvis.
E: pyelovenous backflow.
Answer= E.
Following acute ureteral obstruction, the renal pelvic pressure is initially elevated but gradually returns to normal. Glomerular filtrate exits the renal pelvis by extravasation into the perirenal spaces, pyelolymphatic backflow and pyelovenous backflow. It is believed that 80-90 percent of the filtrate in chronic hydronephrosis is reabsorbed in the tubules and exits via the renal veins.

30. A 47-year-old uncircumcised married man is diagnosed with high grade Ta squamous cell carcinoma of the foreskin. His wife should undergo:
A: observation.
B: HPV vaccination.
C: Pap smear.
D: imiquimod therapy.
E: cervix biopsy.
Answer= C.
HPV infection is associated with the development of penile cancer. Wives or ex- wives of men with penile cancer have a threefold higher risk of cervical carcinoma. The male partners of women with cervical intraepithelial neoplasia have a significantly higher incidence of penile intraepithelial neoplasia. Therefore, screening with Pap smear and pelvic exam is prudent in this setting. HPV vaccination is inappropriate because it is only effective prior to exposure. More aggressive therapy such as biopsy or topical therapy is inappropriate unless a diagnosis of cervix cancer is suspected on physical exam and Pap smear.

31. A 36-year-old woman with cerebral palsy on CIC develops urgency, incontinence with severe perineal skin ulceration. Urodynamics show a 200 ml capacity bladder with overactive contractions and no stress urinary incontinence. She has failed antimuscarinics. Due to her body habitus, CIC is difficult per urethra. The best management is:
A: detrusor myomectomy.
B: ileal conduit.
C: Indiana pouch.
D: bladder augmentation with catheterizable abdominal channel.
E: bladder augmentation with fascial sling.
Answer= D
Bladder augmentation represents the best solution to this complex problem; however, this will commit the patient to CIC. In selected circumstances such as this, a continent catheterizable abdominal channel in conjunction with a bladder augmentation is appropriate. The urethral sphincter is intact in this patient as evidenced by a very high abdominal leak pressure. In a patient desiring a continent solution, an ileal conduit would not be indicated. Use of an Indiana pouch would require ureteral-enteric reanastomosis and a small but definitive risk for upper tract obstruction at the anastamosis. Detrusor myomectomy has not been shown to improve capacity long-term.

32. A 47-year-old man with relapsing remitting multiple sclerosis has severe urinary frequency and incontinence. He has been treated with tamsulosin for six months with no improvement in his symptoms. Examination reveals a 40 gm smooth prostate. CMG, pressure-flow study is shown. The next step is:
A: renal ultrasound.
B: videourodynamics.
C: MRI scan of the spine.
D: TRUS.
E: cystoscopy.



Answer= A.
This urodynamic study documents neurogenic detrusor overactivity and detrusor external sphincter dyssynergia in a patient with MS. Videourodynamics would be redundant and unnecessary. Male MS patients with detrusor sphincter dyssynergia appear to be at greatest risk for urological complications including upper tract deterioration. The upper tracts must be assessed early in a male patient with dyssynergia. Cystoscopy is unlikely to influence treatment planning, and would not be the most appropriate first step. MRI scan of the spine would be indicated in the scenario of unknown pre-existing neurogenic disease, but is unnecessary with a diagnosis of MS. A TRUS would be unnecessary as a TURP would not be recommended treatment in the scenario of neurogenic voiding dysfunction.

33. A four-year-old boy with a PUV has a vesicostomy. Serum creatinine is 0.6 mg/dl. Ultrasound shows minimal hydronephrosis. Videourodynamics show a bladder capacity of 30 cc with a pressure of 14 cm H2O when leakage occurs from the vesicostomy with no reflux. Undiversion is considered. The best management is resection of the posterior urethral valves and:
A: ileal augmentation cystoplasty.
B: ileal augmentation with appendicovesicostomy.
C: bladder cycling via the vesicostomy.
D: primary closure of the vesicostomy.
E: autoaugmentation cystoplasty.
Answer= D
There was at one time concern that a cutaneous vesicostomy caused permanent loss of bladder volume and compliance. However, recent studies show that it does not significantly affect either. Preoperative videourodynamics showing a small bladder capacity do not predict eventual functional bladder capacity. Approximately 75% of children will have normal bladder function after vesicostomy closure. The need for bladder augmentation is more related to the effects of the primary pathological condition on the detrusor. Augmentation cystoplasty is rarely needed after undiversion in patients with a PUV. The eventual need for augmentation should be assessed with sequential follow-up after the vesicostomy has been closed.

34. A 28-year-old man with Kallmann's syndrome is treated with hCG and FSH injections over two years. His serum testosterone and FSH levels are normal. His semen volume is 1.0 ml, sperm count is six million sperm/ml, and sperm motility is 90%. Well-timed sexual intercourse has not resulted in pregnancy for his wife, whose evaluation is normal. The next step is:
A: intrauterine insemination.
B: color Doppler scrotal ultrasound.
C: ICSI.
D: transrectal ultrasound.
E: testis biopsy.
Answer= A.
Intrauterine insemination (IUI) is a highly effective treatment for men with normal semen parameters, especially normal sperm motility. IUI involves placing processed sperm via a catheter inserted through the cervix into the uterine cavity. This bypasses cervical mucous and higher numbers of motile sperm will be able to reach the fallopian tubes. Semen volume and sperm production is limited in men with Kallman's syndrome, because prostate, seminal vesicle and testicular size are affected. However, sperm quality tends to be completely normal. In vitro fertilization is not required at this point, and ICSI is unnecessary. Testis biopsy will not be helpful since the patient is not azoospermic. TRUS is useful to evaluate ejaculatory duct obstruction which is usually associated with azoospermia. It is not associated with Kallmann's syndrome.

35. The upper ureter is more susceptible to serious injury during endourological procedures because it:
A: is less distensible.
B: has thin suburothelium.
C: has thin muscularis.
D: has thin urothelium.
E: has variable blood supply.
Answer= C.
The ureteral wall consists of three different layers. However, the composition of these layers is not constant for the entire length of the ureter. The urothelium is four or five cell layers thick. Beneath the urothelium is a lamina propria with loose or dense connective tissue, but not a distinct structure. The muscularis varies in its composition over the course of the ureter. In the proximal ureter, it consists of a thin, poorly defined inner circular and an outer longitudinal layer. Both the mid and distal ureter have a muscularis which is distinctly composed of an inner longitudinal, middle circular, and outer longitudinal fibers. The deficiency in the muscularis of the upper ureter and the geometric arrangement of large areas of collagenous connective tissue interspacing the muscle bundles is thought to make the upper ureter more susceptible to serious ureteral injury.

36. A 74-year-old man has a 2 cm lower pole renal mass that enhances on CT scan. His medical history includes hypertension, congestive heart failure, and renal insufficiency with a creatinine of 1.8 mg/dl. The next step is:
A: renal mass biopsy.
B: cryoablation.
C: radiofrequency ablation.
D: partial nephrectomy.
E: radical nephrectomy.
Answer= A.
Renal mass biopsy should now be considered in select patients with small renal masses to help stratify oncologic risk and offer the optimal treatment intervention. Most studies suggest that biopsy has an accuracy of over 90% in distinguishing benign vs. malignant histology and an associated 70-80% accuracy in assessing tumor histology and grade. Needle tract seeding is exceedingly rare. This patient has comorbidities that might encourage surveillance of his small renal mass, but a minimally invasive treatment would also be appropriate for an aggressive histology given the favorable tumor size and location. Knowing the histology could assist in counseling this patient, particularly since ~20% of small renal masses are benign. Radical nephrectomy would be inappropriate in treating a small exophytic lesion in a patient with renal insufficiency. Given the patient comorbidity and the potential morbidity of partial nephrectomy, a less invasive approach is favored in this setting. This patient is also a reasonable candidate for observation.

37. An 82-year-old woman living in a nursing home has urinary urgency and urge incontinence. Neurologic examination is normal. Urinalysis is normal. Residual urine is 140 ml after voiding 160 ml. The most likely etiology of her symptoms is:
A: detrusor overactivity.
B: detrusor sphincter dyssynergia.
C: decreased detrusor compliance.
D: detrusor overactivity with impaired contractility.
E: intrinsic sphincter deficiency.
Answer= D.
Detrusor overactivity with impaired contractility is the most common cause of urinary incontinence in the frail elderly and presents as urge incontinence or unspecified incontinence with large postvoid residual urine. Detrusor-sphincter dyssynergia is only seen in patients with neurologic disorders. Patients with intrinsic sphincter deficiency complain of stress incontinence. She has no risk factors for decreased bladder compliance.

38. A 28-year-old woman in her third trimester of pregnancy has a cervical culture positive for Neisseria gonorrhoeae. She developed a skin rash and urticaria after taking penicillin previously. A skin test for penicillin allergy is negative. The most appropriate treatment is:
A: procaine penicillin G.
B: tetracycline.
C: erythromycin.
D: ceftriaxone.
E: spectinomycin.
Answer= D.

Ceftriaxone is the drug of choice for Neisseria urethritis and cervicitis. It is safe to administer during pregnancy. Tetracycline and spectinomycin should be avoided. Although erythromycin may be given, it is not the preferred antibiotic in this situation. The decision to administer penicillin to a patient with a history of allergy is dependent on the severity of the reaction and the availability of alternative drugs. Only one-fourth of those with a history of allergic reactions to penicillin have anadverse effect when re-challenged with the drug. Desensitization techniques may be of value to those with a history of major allergic reaction and where there is a strong need to give the drug. Ceftriaxone can be administered to women in their 3rd trimester.

39. The maximum yearly whole-body exposure to radiation recommended by the National Council on Radiation Protection is:
A: 1 rem.
B: 5 rem.
C: 10 rem.
D: 50 rem.
E: 100 rem.
Answer= B.
Urologists may have significant occupational radiation exposure. It is important to wear radiation protection for the body, thyroid and eyes. Place the fluoroscopy beam under the table if possible and use the principle ALARA or "as low as reasonably achievable". The maximum yearly dose recommended by the National Council on Radiation Protection is 5000 mrem or 5 rem.

40. Administration of I.V. mannitol prior to renal artery occlusion for partial nephrectomy helps prevent tissue damage by:
A: increasing cellular pH.
B: preventing cellular edema.
C: inhibition of Na/K ATPase.
D: preventing lactic acidosis.
E: limiting intracellular calcium influx.
Answer= B.
Renal ischemia will deplete ATP energy stores, decreasing activity of active transport via Na+/K+ and Ca++/Mg++ ATPases. As a result, intracellular influx of Na+, Ca++, Cl- and water occur. The influx of water causes cellular swelling and tissue damage. The use of solutions containing impermeable solutes, such as mannitol, help reduce cellular edema. Additionally, mannitol infusion results in improved renal hemodynamics and an osmotic diuresis.

41. A 40-year-old man underwent a vasectomy ten years earlier. He undergoes vasoepididymostomy, and sperm are noted in the epididymis. Six months after this procedure, semen analysis reveals azoospermia. The next step is:
A: repeat vasoepididymostomy.
B: epididymal sperm aspiration and ICSI.
C: testis biopsy.
D: repeat semen analysis in three months.
E: donor insemination.
Answer= D.
Delayed return of sperm in the ejaculate may occur after vasoepididymostomy. Men without sperm in the epididymal fluid at the time of the anastomosis will never recover sperm in the ejaculate. Forty-one percent of patients will have delayed appearance of sperm in the ejaculate which can take up to one year or longer. The ultimate mean sperm count will be similar in those with immediate and delayed return of sperm. Delayed anastomotic obstruction is also the same in both groups.

42. During a left laparoscopic pyeloplasty the inferior mesenteric artery is accidentally ligated. Blood supply to the left colon will be primarily maintained by:
A: left colic artery.
B: left colic artery and inferior hemorrhoidal arteries.
C: middle colic artery and superior hemorrhoidal arteries.
D: marginal artery and superior hemorrhoidal arteries.
E: middle colic and middle hemorrhoidal arteries.
Answer= E.
The inferior mesenteric artery supplies the main blood supply to the left colon via the left colic artery and superior hemorrhoidal arteries. When this is injured or ligated, blood supply is maintained proximally via the middle colic artery which is a branch of the superior mesenteric artery and distally via the middle and inferior hemorrhoidal arteries. The middle colic and hemorrhoidal arteries connect with each other via the marginal artery of Drummond. This artery runs parallel to the wall of the colon. It is important to maintain this artery during any dissection of the left colon in cases where injury to the inferior mesenteric artery may occur.

43. Compared to primary penile prosthesis insertion, prosthesis revision is associated with an increased risk of:
A: infection.
B: mechanical failure.
C: erosion.
D: persistent penile pain.
E: hemorrhage.
Answer= A.
Overall infection rates following initial penile prosthesis insertion range from 1 to 3%. This rate is considerably higher for revision surgery (7-18%). Antibiotic impregnation of prostheses components has reduced the risk of infection. Risk of mechanical failure, erosion, penile pain, and hemorrhage are not higher after repeat prosthesis insertion. Loss of penile size has been associated with delayed reimplantation, and so early replacement has been advocated for patients considering replacement.

44. A 62-year-old man undergoes a TURBT at the dome. Final pathology reveals muscle-invasive small cell carcinoma. Metastatic work-up is negative. The next step is:
A: restaging TURBT.
B: neoadjuvant cisplatin-based chemotherapy.
C: XRT.
D: partial cystectomy.
E: radical cystoprostatectomy.
Answer= B.
Small cell carcinoma of the bladder is a relatively rare tumor of the bladder that may arise in combination with urothelial carcinoma. It is usually biologically aggressive with early vascular and muscular invasion. These malignancies usually respond to, but are not cured by, cisplatin-based chemotherapy regimens. Neither partial cystectomy nor intravesical chemotherapy is appropriate in this setting. Radiation or extirpative surgery alone may result in cure rates of 5 to 20%. However, neoadjuvant chemotherapy followed by surgery or radiation therapy results in cure rates of 40 to 65%. Therefore, the best treatment is cisplatin-based chemotherapy followed by an aggressive local treatment such as surgery or radiation if the patient does not progress.

45. Beta-lactamase inhibitors are useful for treating UTIs because they:
A: enhance entry of a second antimicrobial agent into bacteria.
B: protect a penicillinase-susceptible agent from hydrolysis.
C: are bactericidal.
D: are active against methicillin-resistant staphylococcus.
E: antagonize the bactericidal effect of penicillin-like drugs.
Answer= B
Bacteria that make beta-lactamase (penicillinase) are resistant to penicillin because the beta-lactamase hydrolyzes the penicillin. The beta-lactamase inhibitors bind to beta-lactamase to make it unavailable for causing enzymatic hydrolysis of penicillinase-susceptible penicillin. In this way, clavulanic acid and sulbactam, inhibitors of microbial beta-lactamases, will allow hydrolysable penicillins to continue to be active against resistant organisms. These inhibitors do not enhance drug entry into bacteria, nor are they active against the bacteria on their own. They are used in combination with a penicillin-like antimicrobial agent such as: ticarcillin-clavulanic acid (Timentin), ampicillin-sulbactam (Unasyn), amoxicillin- clavulanic acid (Augmentin). Methicillin itself is a penicillinase-resistant penicillin, and as such the addition of a beta-lactamase inhibitor is not useful in treating bacteria already resistant to methicillin.

46. A 50-year-old man has a two year history of erectile dysfunction, urinary frequency, nocturia, and recurrent UTIs. Physical examination reveals an absent bulbocavernosus reflex and an enlarged prostate. Neurologic evaluation reveals decreased vibratory sensation in his hands and feet. A CMG

shows 200 ml residual urine and first sensation at 400 ml. These findings are most consistent with:
A: multiple sclerosis.
B: Shy-Drager syndrome.
C: Parkinson's disease.
D: herpes zoster.
E: diabetes mellitus.
Answer= E.
The decrease in vibratory sensation of the hands and feet, a delayed first sensation at 400 ml on a CMG, and increased residual urine all favor the diagnosis of diabetic cystopathy. Urinary frequency and nocturia may also be due to an osmotic diuresis. The absent bulbocavernosus reflex is unusual but can occur in normal men. Good sphincter tone and voluntary sphincter contraction would suggest there is no abnormality in the sacral reflex. The findings presented are more consistent with undiagnosed diabetes mellitus. These urodynamic findings are not typical for Parkinson's disease which is usually detrusor overactivity and impaired contractility. In contrast, Shy-Drager syndrome would have detrusor overactivity, open bladder neck, and denervation of the external sphincter. Herpes zoster tends to have cutaneous lesions and exhibit a dermatomal pattern, not a symmetrical neuropathy as described in this scenario.

47. A 30-year-old woman sustains a complete transection of the left ureter at the level of L5 during removal of a large ovarian cyst. Preoperative CT scan was within normal limits. The most appropriate treatment is:
A: transureteroureterostomy.
B: ureteroureterostomy.
C: nephrostomy and delayed ureteral repair.
D: psoas hitch and ureteroneocystostomy.
E: Boari flap and ureteroneocystostomy.
Answer= B.
Hysterectomy is responsible for the majority (54%) of surgical ureteral injuries. Next most common was colorectal surgery (14%), followed by pelvic surgery such as ovarian tumor removal and transabdominal urethropexy (8%), followed lastly by abdominal vascular surgery (6%). Ureteroureterostomy, or so-called end-to-end repair, is used in injuries to the upper two thirds of the ureter. It is required commonly, up to 32% of the time in large series. Simple transection of the ureter at the L5 level can be easily managed by spatulating each end of the ureter and performing an elliptical anastomosis over a stent. Transureteroureterostomy could potentially compromise the contralateral ureter. In the absence of life-threatening bleeding or other traumatic injuries, injuries recognized intraoperatively should be repaired immediately; delayed repair is thus inappropriate. Psoas hitch should be reserved for defects of the distal ureter; Boari flaps are only necessary when larger defects of the distal and mid ureter preclude simpler reconstructive approaches.

48. A 65-year-old man undergoes a radical cystectomy with ileal neobladder reconstruction. On post-op day three, he has a mild abdominal distention and increased bilious output from his nasogastric tube. His urine output is slightly diminished but adequate. He is hemodynamically stable. His maintenance fluid is 0.45 NS at 85 cc/hr. His nasogastric tube output should be replaced with:
A: 0.45 NS.
B: 0.45 NS with 20 mEq/l KCl.
C: 0.45 NS with 30 mEq/l KCl.
D: 0.9 NS with 20 mEq/l KCl.
E: Lactated Ringer's.
Answer= E.
This patient has a post-op ileus in which there will be increased fluid losses of isotonic fluid into the bowel lumen. The presence of bilious output is indicative of the ileus and the associated loss of fluids and secretions (including pancreatic) into the bowel lumen. When a post-op ileus occurs, these insensible losses need to be replaced early on in the process to prevent dehydration and secondary vascular compromise. This is best accomplished with a fluid that is isotonic like Lactated Ringer's that also provides replacement with approriate levels of potassium, chloride, and bicarbonate. Saline with KCl supplementation would be more appropriate for replacement of gastric secretions.

49. A 63-year-old man has a temperature of 39°C and fecaluria eight days after radical prostatectomy. A pelvic CT scan demonstrates a 5 by 4 cm heterogeneous peri- rectal fluid collection. He had received an oral bowel prep and antibiotics pre- operatively. The best management is parenteral antibiotics, percutaneous drainage of the fluid collection, and:
A: low-residual diet.
B: parenteral hyperalimentation.
C: suprapubic tube.
D: colostomy.
E: enteral hyperalimentation.
Answer= D.
Rectal injury occurs in approximately 1.5% of patients undergoing radical prostatectomy. If the injury is recognized intraoperatively and the patient has received an appropriate combination bowel prep, the injury can be repaired primarily. If the rectal injury is recognized post-operatively as a vesicorectal fistula, conservative management is not indicated. In this case, the patient also has associated infection and therefore a colostomy with delayed primary repair is indicated. In the face of a large fluid collection and active infection, less aggressive approaches are not indicated.

50. A 30-year-old woman complains of a vaginal discharge and odor. She has no itching, burning, or soreness. On physical examination, she has a malodorous, gray-yellow discharge. Microscopic examination of the discharge shows clue cells. A whiff test is positive. The etiology her vaginitis is:
A: Candida albicans.
B: Gardnerella vaginalis.
C: Trichomonas vaginalis.
D: Chlamydia trachomatis.
E: mucorrhea.
Answer= B.
The presence of clue cells (vaginal epithelial cells whose borders are obscured by bacteria) and a positive whiff test (fish odor after adding potassium hydroxide to the discharge) are diagnostic of a Gardnerella vaginalis infection. The organism is not a tissue pathogen, so local symptoms are absent. Treatment with oral metronidazole is the standard. New molecular techniques have identified a biofilm containing mostly Gardnerella and Atopobium vaginae, which can persist after treatment; thus suppressive treatment with metronidazole gel can prevent recurrence. Candida vaginitis and Trichomonas vaginalis are diagnosed by finding the organisms that cause these infections on microscopic examination. Chlamydia causes a cervicitis, and mucorrhea (a clear or cloudy discharge) is normal.

51. The most likely neurologic deficit following nerve injury at the time of laparoscopic varicocelectomy is:
A: numbness on the base of the penis and anterior scrotum.
B: numbness on the anterior thigh.
C: numbness on the lateral thigh.
D: inability to extend the knee.
E: inability to adduct the thigh.
Answer= B.
Laparoscopic varicocelectomy is a minimally invasive option for management of varicoceles. The genitofemoral nerve lies directly atop the psoas muscle. Approximately 4-5 % of patients undergoing laparoscopic varicocelectomy will complain of either temporary or permanent alterations in the sensory innervation of the anterior thigh consistent with injury to the genitofemoral nerve. The genitofemoral nerve arises from L1-L2, emerges from the psoas, passes posterior to the ureter and divides into the genital and femoral branches above the inguinal ligament. The femoral branch then passes behind the inguinal ligament and enters the femoral sheath. The genital branch enters the inguinal canal close to the internal inguinal ring to supply the cremaster muscle and the scrotal skin. The ilioinguinal nerve (numbness on the base of the penis and anterior scrotum) and lateral femoral cutaneous nerve (numbness on the lateral thigh) run at least 3 cm lateral to the internal ring and, therefore, should be at little risk during routine laparoscopic varicocelectomy. The obturator nerve (inability to adduct the thigh) is medial and caudal to the iliac vessels and should not be injured during varicocelectomy. The femoral nerve (inability to extend the knee) is deep in the psoas muscle. It can be injured during open surgery with retraction but injury is unlikely during laparoscopy.

52. A 54-year-old woman underwent radiation therapy for cervical cancer two years ago now has microscopic hematuria. TUR of a lesion 2 cm above the left ureteral orifice reveals an inverted papilloma. Three days post-operatively, she develops a vesicovaginal fistula. The best treatment is:
A: immediate transvaginal repair.
B: transvaginal repair in six months.
C: immediate transabdominal repair.
D: transabdominal repair in six months.
E: urinary diversion.
Answer= C.
In a woman with no evidence of abscess formation or a fluid collection, there is little need to wait an extended period of time before fistula repair. The abdominal approach provides better access to a radiation induced fistula and allows an omental pedicle flap to be interposed between the bladder and vaginal wall. Obliteration of dead space, good bladder drainage, control of infection and interposition of healthy tissue are critical elements to fistula closure.

53. Primary hyperaldosteronism caused by bilateral adrenal hyperplasia is best managed by:
A: salt restriction.
B: spironolactone administration.
C: captopril administration.
D: unilateral adrenalectomy of the larger adrenal.
E: bilateral adrenalectomy.
Answer= B.
Patients with bilateral adrenal hyperplasia are best treated medically. Bilateral adrenalectomy will sacrifice glucocorticoid and mineralocorticoid function. Moreover, either partial or unilateral adrenalectomy will not correct the hypertension accompanying this disorder. While patients become hypokalemic with hyperaldosteronism, neither potassium supplementation nor salt restriction will correct the etiology of the hypertension. Captopril may be indicated in a subset of primary hyperaldosteronism patients in whom aldosterone production is not completely autonomous from angiotensin II stimulation.

54. A six-year-old boy has a history of a PUV treated with endoscopic resection. He now has worsening bilateral hydronephrosis and his serum creatinine has increased from 0.6 to 1.0 mg/dl over the past nine months. He is dry and has no voiding complaints. Videourodynamics reveal no reflux, near complete emptying without outflow obstruction and filling pressures of 20 cm H2O at 220 ml and 32 cm H2O at 280 ml. The initial plan should be:
A: voiding diary.
B: start oxybutynin.
C: start alpha-blocker.
D: nocturnal indwelling catheter.
E: initiate CIC every four hours.
Answer= A.
Children with correction of severe obstructive uropathy will sometimes demonstrate a persistent decrease in renal concentrating ability. This tends to worsen with growth and may lead to very high obligate urine output. This output can, at times, be so high that children cannot void frequently enough to maintain safe intravesical pressures; hydronephrosis and rising creatinine will ensue. This boy appears to void without obstruction. He does have reduced bladder compliance (as many valve patients do), but his pressures only reach 32 cm H2O by 280 ml -which should be an average six-year-old bladder capacity. However, if his urine output is very high, then he will reach this capacity very quickly after voiding. While he may eventually need timed voiding, antimuscarinic medication, CIC, or use of a nocturnal indwelling catheter, none of them can be used in a logical way without first knowing more about the patient's daily urine output volume. An alpha-blocker is not indicated in this patient.

55. A 42-year-old woman has a slow rise in serum creatinine from 1.2 to 2.0 mg/dl one year after uneventful live donor transplantation. Ultrasound shows significant hydronephrosis and no perinephric fluid collection. The next step is:
A: CT scan.
B: MAG-3 renal scan.
C: VCUG.
D: retrograde ureterogram.
E: renal allograft biopsy.
Answer= C.
The absence of a perinephric fluid collection and late presentation of hydronephrosis accompanied by slowly declining renal function suggests the possibility of significant reflux into the transplant ureter. The most appropriate initial diagnostic study is a voiding cystourethrogram. Although a CT scan of the abdomen and pelvis can demonstrate the anatomy to a better degree than the ultrasound, the findings here with additional definition does not help with diagnosing the rise in creatinine. If a VCUG shows no reflux, a diuretic MAG-3 renal scan would be done to quantify any degree of obstruction at the ureterovesical junction where the anastomosis was performed. A retrograde ureterogram would be helpful but that is a diagnostic procedure that requires anesthesia and also the location of the ureteroneocystostomy is difficult to cannulate especially in the suspicion of ureteric complications such as stenosis. Renal allograft biopsy is not indicated as the first step in an ultrasound finding ofsignificant hydronephrosis. The likelihood of long-term ureteric stenosis is 5-8%, whereas the likelihood of reflux exceeds 50% in the post-transplant population.

56. The urine sample that should be collected for pH testing to establish the diagnosis of RTA is:
A: fasting.
B: postprandial.
C: diurnal.
D: nocturnal.
E: hydrated.
Answer= A.
Distal RTA (Type I) is commonly associated with urinary calculi, primarily calcium phosphate stones. The hallmark of RTA is an inability to acidify the urine. Initial screening for RTA can be done by measuring the pH of the second voided morning urine specimen after the patient has fasted overnight. The second voided specimen is better than the first because the first voided specimen may have an elevated pH as a result of pre-fasting food intake.

57. A six-year-old girl has a palpable abdominal mass. CT scan demonstrates a 5 cm mass in the lower pole of the left kidney and a 2 cm lesion in the upper pole of the right kidney. Biopsy of the left renal mass shows Wilms' tumor. The next step is:
A: chemotherapy.
B: chemotherapy and XRT.
C: bilateral partial nephrectomies.
D: left radical nephrectomy and right partial nephrectomy.
E: left radical nephrectomy and chemotherapy.
Answer= A.
There is current controversy as to whether patients with Wilms' tumor should undergo primary surgical exploration or initial pre-operative chemotherapy. However, there is general consensus that there are several instances when surgical therapy should not be undertaken, other than biopsy. This includes vena caval extension of the tumor above the hepatic veins, inoperable tumor, and bilateral disease. Bilateral disease is seen in about 5% of cases. In these cases, therapy is directed towards preservation of renal tissue since there is high incidence of renal failure, especially when a primary nephrectomy is undertaken. Thus, primary chemotherapy is indicated in patients with bilateral disease with a subsequent surgical exploration following completion of the first course of chemotherapy.

58. A 28-year-old paraplegic man had a sphincterotomy seven years ago and wears a condom catheter. During an evaluation for renal insufficiency, renal ultrasonography reveals bilateral hydroureteronephrosis. The parameter or study most predictive of this complication is:
A: EMG.
B: CMG.
C: Valsalva LPP.
D: detrusor LPP.
E: urethral pressure profilometry.
Answer= D.
Detrusor LPP is the most reliable urodynamic parameter to predict the risk of upper tract deterioration after sphincterotomy. A detrusor LPP of higher than 40 cm H2O indicates that the sphincterotomy has failed, and may serve as a guide to determine whether a repeat sphincterotomy is necessary. Abnormal compliance, which may be detected on CMG, may also be a worrisome finding, but there is

much less established predictive value. To date, there is no correlation of urethral function tests (urethral pressure profile, Valsalva LPP, EMG) to upper tract deterioration.

59. An oligospermic man who takes 25 mg of clomiphene citrate a day will usually have a:
A: low serum LH.
B: low serum FSH.
C: low serum estradiol.
D: high serum testosterone.
E: high prolactin.
Answer= D.
Clomiphene citrate is an antiestrogen that blocks the negative feedback of estrogen on the hypothalmus and pituitary. It will raise the serum FSH, LH, and testosterone. Estradiol may also rise because of peripheral conversion of testosterone through the action of aromatase. When used for idiopathic oligospermia, the majority of (but not all) controlled studies show no effect onpregnancy rates. Clomiphene citrate does not affect prolactin levels.

60. An eight-year-old girl has urinary urgency, urge incontinence, and constant leakage of urine between voids. She is started on timed voiding and has improvement with the urge incontinence but still has constant urinary leakage. An ultrasound does not show any evidence of hydronephrosis or bladder wall thickening. The next study that will most definitively diagnose her problem is:
A: MRI scan of the abdomen.
B: MRI scan of the spine.
C: VCUG.
D: videourodynamics.
E: MAG-3 renal scan.
Answer= A.
The clinical history strongly suggests that this girl has an ectopic ureter even though the ultrasound does not show evidence of this. The absence of an abnormality on ultrasound does not rule out an ectopic ureter. Occasionally, the renal parenchyma from the upper pole of the kidney that is associated with the ectopic ureter is difficult to locate and may be identified only by alternative imaging studies. In cases in which an ectopic ureter is strongly suspected because of incontinence yet no definite evidence of the upper pole renal segment is found, magnetic resonance imaging (MRI or CT scanning) will likely demonstrate the small, poorly functioning upper pole segment and ureter. None of the other options will adequately visualize the ectopic ureter.

61. Stage III prolapse in the Pelvic Organ Prolapse Quantification (POPQ) system occurs when the most distal portion of the prolapse is:
A: 1 cm or less proximal or distal to the hymenal plane.
B: 1 cm or less proximal or distal to the introitus.
C: > 1 cm below the hymen; entire vagina has not prolapsed.
D: > 1 cm below the introitus; entire vagina has not prolapsed.
E: associated with complete vaginal eversion.
Answer= C
The International Continence Society has established a standardized system to quantify pelvic organ prolapse, this classification is known as the POPQ system an acronym that is short for pelvic organ prolapsed quantification. The system uses the hymenal ring as its central identification point, the hymen was chosen over the vaginal introitus because it can be more precisely located within the vaginal vault, all measurements are based from this location. This classification avoids the use of the terms cystocele or rectocele, recognizing that the actual organ prolapsing may be unable to be determined by a physical examination. The examination to determine POPQ stage is performed in a dorsal lithotomy position with the patient straining. The POPQ staging system has excellent inter-observer and intra-observer reliability and has become the standard for reporting outcomes following prolapsed repair. The staging system is however not perfect and can be significantly affected by patient positioning, with the degree of the prolapsed being more severe if the patient is examined with the head of the table raised to 45 degrees or higher. In addition, it fails to assess for unilateral or asymmetric defects. The POPQ staging systems is defined as: Stage 0 - no prolapsed Stage I - the most distal portion of the prolapse is more than 1 cm above the hymen. Stage II - the most distal portion of the prolapse is +/-1 cm above or below the hymen. Stage III - the most distal portion of the prolapsed protrudes > 1 cm below the hymen and the total vagina has not prolapsed. Stage IV - the entire vagina everts-complete prolapse.

62. A 45-year-old man with congestive heart failure develops epididymitis. His current medications include digoxin, enalapril and amiodarone. The next step in management is:
A: administer ciprofloxacin.
B: discontinue enalapril.
C: discontinue amiodarone.
D: discontinue digoxin.
E: administer doxycycline.
Answer= C.
The incidence of epididymitis during amiodarone therapy is reported to be as high as 11%. Epididymitis usually resolves with discontinuation of this medication, which should be done under the supervision of the treating cardiologist. Dose reductions of amiodarone may also improve symptoms. This condition has been associated with high serum or epididymal levels of amiodarone or its metabolites. The development of anti-amiodarone antibodies may play a role in the pathophysiology of this disorder. Lymphocytic infiltration and fibrosis of the epididymis are seen on histologic analysis. There is no bacterial etiology and thus antibiotics are not indicated.

63. A 40-year-old woman has chronic renal insufficiency and a creatinine of 2.5 mg/dl. The medication that will increase the serum creatinine but not alter the true GFR is:
A: captopril.
B: cimetidine.
C: trimethoprim.
D: spironolactone.
E: cisplatin.
Answer= C.
Endogenous creatinine and creatinine clearance is the most widely used surrogate for GFR. In the presence of normal renal function, 90% of creatinine is filtered and 10% is secreted by the proximal tubules. As GFR declines, tubular secretion may contribute up to 35% of all creatinine removal at levels of 40-80 ml/min. The commonly utilized antibiotic trimethoprim blocks the tubular secretion of creatinine. Since creatinine is produced at a steady state, the serum creatinine will rise but the GFR does not change. Captopril and spironolactone might alter renal perfusion causing a change in the GFR that leads to an altered creatinine level. Cisplatin has a direct nephrotoxic effect but would not raise creatinine without altering GFR.

64. A 32-year old spinal cord injured man undergoes cystoscopy using local anesthesia and I.V. sedation. The symptom complex most indicative of autonomic dysreflexia is:
A: hypertension, bradycardia, facial flushing.
B: hypertension, tachycardia, diaphoresis.
C: hypertension, tachycardia, facial flushing.
D: hypotension, bradycardia, pallor.
E: hypotension, tachycardia, diaphoresis.
Answer= A.
Autonomic dysreflexia is a potentially life-threatening condition seen in patients with spinal cord injury above the T6 spinal level. It is precipitated by a variety of stimuli although for the practicing urologist it is most commonly seen during procedures that result in bladder or bowel distension. Afferent stimuli arising below the T6 spinal level leads to massive reflexive sympathetic discharge from thoracolumbar levels with inability of hypothalamic inhibition due to the spinal cord disruption. This leads to hypertension associated with headache, facial flushing and diaphoresis. Reflex bradycardia occurs secondary to carotid body stimulation by the hypertension. Tachycardia and hypotension are not associated with autonomic dysreflexia. The initial treatment should be to remove the noxious stimuli. Thus prompt bladder drainage and cessation of the procedure should occur.

65. A 42-year-old man with azoospermia and primary infertility has an FSH of 15 IU/l, small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have a biologic child is:
A: vasography.
B: serum FSH.

C: wife's fertility.
D: testicular volume.
E: testicular biopsy.
Answer= C.
The presence of small volume testes with an elevated FSH suggests the presence of non-obstructive azoospermia. Most men with non-obstructive azoospermia will have sperm retrievable from the testes that can be used in conjunction with in vitro fertilization for the wife. The most important characteristic to determine eligibility for treatment will be the wife's age and fertility. Screening for obstruction (with vasography) is not of value.

66. A 25-year-old man had an ileal bladder augmentation at age six years. He now has anorexia, weight loss, polydipsia, and lethargy. Serum electrolyte results are: sodium 136 mEq/l, potassium 4.2 mEq/l, chloride 114 mEq/l, and bicarbonate 14 mEq/l. The next steps are hydration and:
A: chlorpromazine.
B: potassium citrate.
C: sodium chloride.
D: cimetidine.
E: omeprazole.
Answer= B.
The treatment of hyperchloremic metabolic acidosis involves administering alkalinizing agents or blockers of chloride transport. Alkalinization with oral sodium bicarbonate is effective in restoring normal acid-base balance if it is tolerated. Sodium citrate and citric acid solution (Bicitra or Shohl's solution) used together is an effective alternative; however, many patients do not care for the taste. Potassium citrate, sodium citrate, and citric acid solution (Polycitra) may be used instead if excessive sodium administration is a problem because of cardiac or renal disease and if potassium supplementation is desirable or at least not harmful. In those patients in whom persistent hyperchloremic metabolic acidosis occurs and in whom excessive sodium loads are undesirable, chlorpromazine or nicotinic acid may be used to limit the degree of the acidosis. These agents used alone do not correct the acidosis, but they limit its development and thus reduce the need for alkalinizing agents. Chlorpromazine and nicotinic acid inhibit cAMP and thereby impede chloride transport, helping to minimize bicarbonate loss.

67. A 28-year-old woman with newly diagnosed hypertension has a 1.8 cm partially calcified right renal artery aneurysm. Appropriate long-term management is:
A: sodium restriction.
B: weight loss.
C: thiazide diuretic.
D: selective embolization.
E: surgical repair.
Answer= E.
Renal artery aneurysms are often associated with hypertension. Other symptoms may include flank pain and hematuria. When less than 1.5 cm in size, conservative management such as sodium restriction, weight loss and antihypertensives (thiazide diuretics) are indicated. Although rupture of renal artery aneurysms is uncommon, when it occurs during pregnancy, the results can be catastrophic. For this reason, it is recommended that renal artery aneurysms in women of child bearing age be surgically repaired. Fully calcified renal artery aneurysms tend to be stable and have negliable risk for rupture and would not require surgical intervention. Selective embolization will lead to loss of significant renal parenchyma.

68. A promoter of urinary stone crystallization is:
A: glycosaminoglycans.
B: bikunin.
C: magnesium.
D: matrix.
E: pyrophosphate.
Answer= D.
Factors that determine kidney stone formation include supersaturation, inhibitors and promoters of crystallization, and intrarenal anatomy. Promoters are matrix and Tamm-Horsfall protein whereas inhibitors are citrate, magnesium, pyrophosphate, bikunin, glycosaminoglycans, and osteopontin.

69. A 15-year-old boy presents with a 22-caliber gunshot wound to the left flank. Evaluation reveals an entrance wound posterior to left anterior axillary line, no exit wound seen. Vital signs are stable and there is no sign of peritoneal irritation. CT scan reveals a grade 2 left renal injury, right kidney within normal limits, no air is noted in the peritoneal cavity; no associated organ injuries are noted. Distal ureters are intact bilaterally. The next step is initiate intravenous antibiotics and:
A: observation.
B: retrograde ureteropyelogram.
C: intravenous indigo carmine and local exploration of wound.
D: retroperitoneal exploration and renorrhaphy alone.
E: exploratory laparatomy, retroperitoneal exploration and renorrhaphy.
Answer= A.
Approximately 10% of traumatic pediatric genitourinary injuries are due to penetrating trauma with gun shot wounds to the trunk causing a genitourinary injury approximately 15% of the time. In patients with GU trauma secondary to a gunshot wound, the kidney is the site of injury in approximately 60% of the patients, the bladder in 20%, the urethra in 5%, the ureter in 2%. Two or more genitourinary injuries occur in 13%. If a genitourinary structure is traumatically damaged due to a gunshot wound the likelihood of associated organ injury is approximately 90%. In most cases gunshot wounds to the abdomen will result in a hemodynamically unstable patient with multiple associated organ injuries, requiring urgent laparotomy. The need for emergent surgery excludes the ability to adequately stage the renal injury.However, several studies have shown that a selective nonoperative approach to the management of patients with stab wounds and in very select cases, low velocity gun shot wounds, can be safely implemented. Specifically, in hemodynamically stable patients with a penetrating wound posterior to the anterior axillary line, intravenous antibiotics are initiated to cover the contamination induced by a penetrating foreign object. and a screening triphasic abdominal and pelvic CT scan is obtained. If the patient has an isolated grade 1 or 2 renal injury the vast majority of patients can be managed successfully with a non-operative approach with only minimal complications. In these patients surgical exploration is indicated for persistent blood loss, the presence of air in the peritoneum, signs of developing peritonitis, or radiographic findings consistent with a ureteral injury.

70. A 26-year-old man with neurofibromatosis develops hypertension two years after excision of a benign cerebellar hemangioma. The most likely cause is:
A: primary hyperaldosteronism.
B: adrenal cortical carcinoma.
C: renal artery stenosis.
D: juxtaglomerular cell tumor.
E: diabetes insipidus.
Answer= C.
Neurofibromatosis type I or Von Recklinghausen Disease is diagnosed when a patient has two of any of the seven classic features:= 6 cafe acute|-au-lait cutaneous pigmentation (approximately 100% of patients), excessive axillary or inguinal freckling, hamartomas of the iris, optic gliomas, neurofibromas, osseous bone lesions (sphenoid dysplasia that causes exophthalmous or cortical thinning of the long bones) or a family history of neurofibromatosis. Neurofibromatosis type II is characterized when bilateral acoustic neuromas are found in conjunction with any two of the following findings, neurofibroma, CNS meningioma, schwannoma, glioma or optic lenticular opacities. Type II patients are more likely to have CNS tumors and < 50% have cafe acute|-au-lait spots. Both types are transmitted in an autosomal dominant fashion; however type II usually will arise as a spontaneous mutation. The most common cause of hypertension within patients with neurofibromatosis of either type is renal artery stenosis due to proliferation of neural tissue within the arterial wall resulting in intimal thickening and subsequently renal artery stenosis. On rare occasions, hypertension within this population may arise from a secondary pheochromocytoma, a tumor known to be associated with this disorder. Primary hyperaldosteronism results in hypertension due to the overproduction of the mineralocorticoid aldosterone and classically arises from one of two disorders, either bilateral idiopathic hyperaldosteronism or a aldosterone producing adenomas arising in the adrenal gland. A juxtaglomerular tumor also known as a reninoma is a rare solitary small (< 3 cm in size) hypovascular tumor. This tumor is usually benign and will found in the renal cortex usually in the hilar region. It will arise from endothelial cells

of the juxtaglomerular apparatus and causes hypertension by excessive renin secretion. Diabetes insipidus occurs either as a central defect with inadequate secretion of pituitary vasopressin or when the kidney is resistant to vasopressin activity (nephrogenic diabetes insipidus). This defect will result in diuresis, hypernatremia, and hypotension due to volume loss. Neither primary hyperaldosteronism, adrenal cortical carcinoma, juxtaglomerular cell tumors nor diabetes insipidus are associated with neurofibromatosis.

71. Inhibin is a substance derived from the testicle which mediates secretion of:
A: testosterone.
B: FSH.
C: LH.
D: GnRH.
E: Mullerian inhibiting factor.
Answer= B.
Inhibin is a heterodimeric protein hormone in the transforming growth factor family of protein hormones including activin. Inhibin is secreted by the Sertoli cell for normal feedback inhibition of FSH. Testosterone is regulated by LH. Secretion of both FSH and LH is stimulated by gonadotropin-releasing hormone from the hypothalamus. Mullerian inhibiting factor is secreted by Sertoli cells during embryogenesis and inhibits the development of the Mullerian structures.

72. A 15-year-old girl paraplegic athlete has qualified for the Para Olympics. Her overactive neurogenic bladder has been well-controlled with oxybutynin XL 10 mg bid. She has recently become intolerant of antimuscarinic medication due to severe heat intolerance induced with training. Without antimuscarinic medication, she has uncontrollable urinary incontinence. With the Olympics only seven weeks away, you recommend:
A: intravesical instillations of oxybuyinin.
B: intravesical instillation of resiniferatoxin.
C: intravesical injection of botulinum A toxin.
D: placement of a sacral nerve stimulator.
E: transcutaneous neural modulation.
Answer= C.
Approximately 30% of the patients treated with standard oxybutynin therapy and 15% using slow release formula will develop symptomatic complaints of dry mouth, constipation, and heat intolerance. To reduce the side-effects, intravesical oxybutynin may be used, however, approximately 15-20% of the patients will discontinue the intravesical oxybutinin therapy because of persistent side-effects or clinical ineffectiveness.
New strategies for treating neurogenic detrusor overactivity in antimuscarinic refractory or intolerant patients include intravesical administration of resiniferatoxin or botulinum-A toxin injections into the detrusor muscle. In patients with spinal cord injuries, reorganization of the micturition reflex after the interruption of spinal cord pathways induces C fiber afferents to become mechanoreceptors which initiate reflex voiding. Resiniferatoxin inhibits stimulatory transmission from the bladder's afferent C fibers. Botulinum-A toxin selectively blocks acetylcholine release from presynaptic parasympathetic neuromuscular junctions thereby preventing detrusor hyperactivity. Clinical trials comparing the efficacy of single dose intravesical resiniferatoxin versus intravesical injections of botulinumA toxin reveal both provide beneficial clinical and urodynamic results. Botulinum-A toxin injections however provide significantly superior clinical and urodynamic benefits over a longer time period than intravesical resiniferatoxin.
There are few studies documenting the efficacy and clinical applicability of sacral nerve stimulators in patients with neural injuries or congenitally maldeveloped nerves. Transcutaneous low-frequency neuromodulation has been used commonly in adults and less frequently in neurologically normal children to inhibit detrusor overactivity and treat urge incontinence. To date, the long-term results of transcutaneous neuromodulation in patients with neural injuries have not been described.

73. A 59-year-old woman with microscopic hematuria and a 70 pack per year smoking history has an abnormal cytology. Cystoscopy is negative. The best upper tract imaging modality is:
A: sonography.
B: intravenous urography.
C: CT urography.
D: MRI urography.
E: retrograde urography.
Answer= C.
Diagnosis of upper tract urothelial carcinoma is heavily dependent on imaging. Although sonography can be helpful, it does not have the sensitivity of the other listed modalities. Historically intravenous urography and retrograde urography have been the diagnostic modalities of choice. However, more recently CT urography has been increasingly used. The sensitivity of this modality approaches nearly 100% (compared to approximately 70% for intravenous and retrograde urography). In addition, radiolucent filling defects can be better imaged by CT urography. Although MRI is evolving, comparative studies are lacking. In addition, MRI has poorer spatial resolution compared to CT scan imaging and suffers from motion artifact.

74. The factor most responsible for ureteral dilation during pregnancy is:
A: mechanical compression by the uterus.
B: elevated estradiol levels.
C: elevated progestin levels.
D: placental hormones.
E: increased urine flow.
Answer= A.
Dilation of the ureter occurs commonly during pregnancy and is most prominent by the 22nd to 24th week. Although various experiments have suggested that estrogens, progestins, placental hormones and increased GFR may play a role in the dilation, mechanical compression is the most significant factor. Indeed, quadrupeds have a lower incidence of ureteral dilation during pregnancy than bipeds.

75. A 37-year-old woman with diuretic induced hypokalemia has an elevated 24-hour urinary aldosterone level after a period of salt loading. The initial study for localization of her condition is:
A: MIBG scan.
B: CT scan.
C: ultrasound.
D: iodocholesterol scan.
E: adrenal venography.
Answer= B.
In this patient with significant hypokalemia after diuretic use, the working diagnosis is a primary aldosterone producing tumor. The diagnosis is confirmed by evidence of elevated 24-hour urinary aldosterone levels after salt loading. The next step is to localize the site of the tumor. These tumors are generally localized by CT scan identifying the adrenal mass. If no mass is visible, selective adrenal vein sampling under ACTH stimulation is highly sensitive for localization of which adrenal gland is the source of the elevated aldosterone production. Ultrasound localization of the adrenal tumor is usually not sensitive enough to detect an adrenal tumor in an adult but may be used in a child. MIBG scan is used to localize pheochromoctyomas, to find metastatic pheochromocytoma site or to help identify the site of an extra adrenal paraganglioma. Iodocholesterol scanning is performed using radioactive labeled cholesterol; like the MIBG scan it lacks the special orientation of a CT or MRI scan. Iodocholesterol scans are primarily used to find ectopic steroid producing tumors.

76. A 52-year-old woman with overactive bladder and incontinence is prescribed oxybutynin XL 5 mg daily. She returns somewhat improved after four weeks of therapy but has persistent bothersome urinary symptoms without adverse drug side effects. PVR is minimal and her urinalysis is negative. The next step is:
A: increase dose of oxybutynin.
B: discontinue oxybutynin and start tolterodine.
C: add imipramine.
D: cystoscopy.
E: sacral neuromodulation.
Answer= A.
The patient remains on a subtherapeutic dose of oxybutynin and adverse effects are not reported. Therefore increasing the dose to as

high as 30 mg daily (as tolerated) would be the most appropriate first step. Adding or changing to another agent is not yet necessary.
Cystoscopy is not warranted. Neuromodulation is not indicated at this point as the patient has not had adequate medical therapy in terms of strength of drug or duration of therapy.

77. The primary advantage of using frozen semen rather than fresh semen for in vitro fertilization with donor sperm is:
A: improved implantation rates.
B: improvement in embryonic vitality scores.
C: increased number of cryopreservable spare embryos.
D: decreased risk of HIV transmission.
E: decreased number of insemination cycles required to achieve a pregnancy.
Answer= D.
Recent concerns over the transmission of sexually transmitted diseases by donor insemination have led to the use of frozen donor sperm, which permits quarantine of frozen sperm with re-screening of donors. The disadvantage of this increased safety is a lower per cycle pregnancy rate with intrauterine insemination, largely due to decreased motility of frozen-thawed donor sperm. The number of insemination cycles required to achieve a pregnancy may increase, although the cumulative pregnancy rates appear to be the same as with fresh semen. In contrast, use of frozen donor sperm with in vitro fertilization does not affect implantation rates, embryonic vitality scores or the number of spare embryos.

78. A 12-year-old boy who has previously undergone an ileal augmentation catheterizes every four hours but develops recurrent bladder calculi. The most effective way to diminish recurrence is:
A: restrict dietary sodium.
B: potassium citrate.
C: daily bladder irrigation.
D: increase frequency of catheterization.
E: antibiotic prophylaxis.
Answer= C.
The development of bladder calculi is a frequent complication following bladder augmentation. Sodium restriction to treat hypercalciuria is unnecessary since these stones are not usually due to hypercalciuria. Increased frequency of catheterization will not decrease stone formation. Potassium citrate supplementation has not proven to be effective in reducing the incidence of bladder calculi after augmentation. Antibiotic prophylaxis has not been proven to be effective inpreventing stones following bladder augmentation as they are not induced by infection. The most effective means of preventing stone formation is daily bladder irrigation to eradicate retained mucus, which has been shown to be a nidus for bladder stone formation.

79. A 66-year-old man, two years post-radical prostatectomy, seeks advice about therapy of severe urinary incontinence and complete erectile dysfunction. Both conditions are non-responsive to medical therapy. The next step is:
A: wait one year before definitive treatment.
B: artificial urinary sphincter first and a penile prosthesis at a later date.
C: penile prosthesis first and an artificial urinary sphincter at a later date.
D: penile prosthesis first and a male sling at a later date.
E: synchronous insertion of an artificial urinary sphincter and penile prosthesis.
Answer= E.
The ease of the transscrotal approach for penile prosthesis implantation and the proximity of the urethra has allowed the evolution of a new strategy for dual implantation of an artificial urinary sphincter (AUS) and inflatable penile prosthesis (IPP) at a single setting. Concerns regarding increased infection rates and poor outcomes have prevented widespread acceptance of this simultaneous implantation technique.
A multi-institutional evaluation of dual prosthesis implantation was performed to determine the overall efficacy, safety and long-term success of this innovative approach. Only patients undergoing dual implantation via a single transscrotal technique were included for evaluation. A total of 22 men underwent AUS and IPP device implantation between 2000 and 2003 in a synchronous manner. Mean follow-up was 17 months. Complications were urethral erosion in two patients (9%) and reservoir migration in two (9%), of whom one underwent revision. Importantly no patient experienced a prosthetic infection postoperatively. The overall revision rate was 14%, due to urethral erosion of the AUS in two patients and reservoir migration in one. Initial intermediate follow-up in patients who underwent synchronous dual prosthetic implantation was favorable. The inherent advantage of a single anesthetic event and a single transscrotal incision should encourage widespread acceptance of this technique. Sling insertion and the IPP may also be done simultaneously.

80. A 57-year-old woman on hemodialysis for ten years has gross hematuria and mild right flank pain. Urine cytology and culture are negative. CT scan reveals small kidneys bilaterally with multiple cysts. Cystoscopy reveals bloody efflux from the right ureteral orifice, clear efflux from the left orifice, and normal bladder urothelium. The next step is:
A: antibiotic therapy.
B: angioinfarction of the right kidney.
C: right nephrectomy.
D: needle biopsy of kidney.
E: repeat CT scan in six months
Answer= C.
Eighty percent of patients with end-stage renal failure develop acquired renal cystic disease, and 1-2% will develop renal carcinoma. In fact, 15% of patients with renal carcinoma in this setting will present with metastatic disease. Thusscreening and treatment are important. The patient in question has unilateral bleeding and no evidence of infection as a cause. Due to the increased risk of malignancy, right nephrectomy is recommended. A negative needle biopsy alone would not be sufficient to exclude tumor.

81. A ten-year-old girl with spina bifida has new onset of urinary incontinence. She had previously undergone sigmoid augmentation cystoplasty and bladder neck reconstruction. Renal ultrasound is normal. She performs CIC every four hours and is on oxybutynin 5 mg qid. A urodynamic study reveals detrusor overactivity with peak pressures of 60 cm H2O starting at a bladder volume of 100 ml. The next step is:
A: increase oral oxybutynin.
B: intravesical oxybutynin.
C: oral loperamide.
D: bulking agent injection of bladder neck.
E: reaugment bladder using ileum.
Answer= E.
Approximately 6% of bladder augmentations will fail due to high pressure contractions of the augmenting segment, especially if not detubularized. Persistent bladder overactivity places the patient at risk for incontinence, perforation, and upper tract changes. In spite of pharmacologic management, there is still high bladder pressures making further medical management unlikely to work. Injection of a bulking agent around the bladder neck will not address the primary problem of bladder overactivity. Augmenting the augmented bladder with an additional segment of ileum will treat the problem.

82. A man with erectile dysfunction, diabetes, and an associated autonomic neuropathy complains of debilitating diplopia with sildenafil despite obtaining an excellent erectile response. He should be advised to discontinue sildenafil and:
A: seek an ophthalmologic consultation.
B: use intracavernosal injections.
C: use an intra-urethral suppository.
D: use vardenafil.
E: use tadalafil.
Answer= E.
Diplopia, blurred vision and loss of color vision (chromatopsia) is related to cross activity that some PDE5 inhibitors have for PDE6, the retinal phototransduction enzyme. This is most pronounced with sildenafil and vardenafil and is rarely associated with tadalafil as the latter has very little affinity for PDE6. An ophthalmologic consultation is not required as the adverse event is well documented. An ophthalmologist should be seen for loss of visual acuity or blindness. The fact that the patient responded well to a sildenafil illustrates that his autonomic neuropathy is minimal and the need for more invasive treatments such as transurethral PGE1 suppository or

intracavernosal injection therapy is low. Penile pain due to PGE1 suppository or PGE1 injection monotherapy may be experienced.

83. Stress-related cortisol production comes from the:
A: zona glomerulosa.
B: zona fasciculata.
C: zona reticularis.
D: entire adrenal cortex.
E: adrenal medulla.
Answer= B.
The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

84. Thirty days following treatment of a pyoderma, a five-year-old girl has hematuria, edema, hypertension, and oliguria. Her microscopic urine assessment shows dysmorphic RBCs and RBC casts. Her diagnosis would be confirmed by:
A: mesangial deposits of IgA.
B: anti-glomerular basement membrane antibodies.
C: elevated complement C3 and C4.
D: elevated anti-neutrophil cytoplasmic antibodies (ANCA).
E: elevated antistreptolysin-O (ASO) and a decreased complement C3.
Answer= E
This child presents with classic post streptococcal acute glomerulonephritis. The latency period for a beta-hemolytic streptococcal pyoderma is 21 to 30 days. Diagnosis is made by a positive anti-streptolysin-O or streptozyme titer and a decreased serum complement of C3 and C4 concentrations. Elevated anti-neutrophil cytoplasmic antibodies are found in the circulation of patients with necrotizing systemic vasculitis such as polyarteritis nodosa and Wegener's granulomatosis. Anti-glomerular basement membrane antibodies are seen in patients with Good Pasture's Syndrome. Mesangial deposits of IgA occur with IgA nephropathy. Symptoms of post infectious glomerulonephritis is sometimes confused with IgA nephropathy, however, the prodromal period between the two are different. Gross hematuria in-patients with IgA nephropathy occurs during the acute illness compared to the latency seen in post streptococcal glomerulonephritis, seven days for strep pharyngitis 30 days for strep pyoderma.

85. A 76-year-old healthy woman with nocturnal polyuria is prescribed DDAVP. Hyponatremia may result from:
A: increased sodium excretion.
B: increased urea reabsorption.
C: decreased potassium excretion.
D: decreased luminal aquaporin channels in the collecting duct.
E: decreased effective circulating volume.
Answer= B.
DDAVP may be used for the treatment of nocturnal polyuria. DDAVP results in hypertension due to its effects on the V1 receptor. It increases effective circulating volume, increases potassium excretion and results in increased insertion of aquaporin channels in the collecting duct which is the mechanism by which it exerts its fluid retention properties. DDAVP increases urea reabsorption in the medullary collecting tubule maintaining the high interstitial osmolality required for fluid reabsorption. Increased water retention in excess of sodium retention will lead to hyponatremia.

86. Pheochromocytomas that occur in association with the multiple endocrine adenoma (MEA) syndromes differ from sporadic pheochromocytomas in that:
A: bilateral occurrence is more common.
B: paroxysmal attacks occur more frequently.
C: extra-adrenal sites are more common.
D: hypertension is more severe.
E: secretion of norepinephrine alone is more common.
Answer= A.
The clinical manifestations of pheochromocytoma in the familial syndromes are the same as those in sporadic cases except that in familial syndromes, the pheochromocytomas are almost always bilateral and more frequently malignant.

87. A 40-year-old man has hypertension treated with enalapril and furosemide. He develops muscular weakness, headaches, and polydipsia. Laboratory evaluation reveals hypokalemic alkalosis. Furosemide is discontinued but the hypokalemia persists and supplemental potassium is given. The next step is:
A: saline suppression test.
B: posture stimulation test.
C: aldosterone to renin ratio.
D: discontinue enalapril.
E: adrenal CT scan.
Answer= D.
This man has hypertension and hypokalemia, therefore evaluation for primary aldosteronism is indicated. Measurements of aldosterone should be performed only after potassium supplementation because aldosterone secretion is attenuated by the potassium deficit. Also, angiotensin converting enzymes and calcium channel blockers must be discontinued for at least two weeks before diagnostic evaluation since they may reduce aldosterone biosynthesis and improve hypokalemia in some patients. Adrenal evaluation by CT scan is not cost effective and is unwarranted until other causes are eliminated.

88. The primary goal in the treatment of premature ejaculation is:
A: intra-vaginal ejaculatory latency > 1 minute.
B: intra-vaginal ejaculatory latency > 3 minutes.
C: intra-vaginal ejaculatory latency > 5 minutes.
D: improved self-perception of ejaculatory control.
E: improved patient and partner satisfaction.
Answer= E.
The AUA premature ejaculation (PE) guidelines suggest that patient and partner satisfaction is the main end-point in the treatment of PE. The patient and his partner (should one exist) can be reassured that PE is a common and treatable disorder. Information on the risks and benefits of all therapeutic options should be presented to the patient (and partner) so that an educated treatment choice may be made by the patient in consultation with the physician. Premature ejaculation is not a life-threatening condition; therefore, safety should be another significant consideration. Of note, none of the medical therapies currently employed in the management of PE have been approved by the Food and Drug Administration for this specific indication.

89. A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with six weeks of intravesical BCG therapy for a noninvasive urothelial carcinoma of the bladder, and has not had any tumor recurrence. The TUR specimen reveals BPH and urothelial CIS of the prostatic urethra. There is no evidence of ductal or stromal invasion. The most appropriate management is:
A: repeat BCG therapy.
B: mitomycin C therapy.
C: repeat TURP.
D: cystoscopy and cytology in three months.
E: radical cystoprostatectomy and urethrectomy.
Answer= A.
Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial urothelial carcinoma of the bladder. If the recurrence is confined to the prostatic urethral epithelium, it may be completely eradicated by the TURP. Delivery of an additional course of BCG can effectively be administered and treat prostatic urethral CIS after TURP. This approach will reduce recurrence of the CIS as compared to observation and subsequent cystoscopy, and is thus a preferred treatment. Mitomycin C is a less effective agent against CIS than BCG. Repeat TURP is unneccessary. Radical cystoprostatectomy is necessary if the CIS does not respond to BCG. Otherwise it is overly aggressive in this setting.

90. The antibiotic that can be given during any trimester of pregnancy without harm to the fetus is:
A: trimethoprim/sulfamethoxazole.
B: gentamicin.
C: nitrofurantoin.
D: cephalexin.
E: ciprofloxacin.
Answer= D.
All medications should be used with caution during any trimester of pregnancy. UTIs will occur in 4-7% of pregnancies and it is

generally recommended that penicillins and cephalosporins should be used for treatment. Medications that are relatively contraindicated during pregnancy include the fluoroquinolones, trimethoprim, erythromycin, tetracycline, sulfonamides, and nitrofurantoin. Fluoroquinolones are contraindicated because of their effects on immature cartilage. Trimethoprim may have teratogenic effects and should be avoided, especially in the first trimester. Tetracycline may cause fetal malformations and maternal liver decompensation. Sulfonamides may cause kernicterus and neonatal hyperbilirubinemia and should be avoided in the third trimester. Nitrofurantoin can cause hemolytic anemia in both mother and child when glucose-6-phosphate dehydrogenase deficiency is present.

91. During videourodynamics in a patient with a history of a T8 spinal cord injury, detrusor external sphincter dyssynergia is characterized by simultaneous:
A: increased EMG activity, detrusor underactivity, and narrowing of the prostatic urethra.
B: increased EMG activity, detrusor overactivity, and narrowing of the membranous urethra.
C: decreased EMG activity, detrusor overactivity, and dilation of the prostatic urethra.
D: decreased EMG activity, detrusor underactivity, and narrowing of the membranous urethra.
E: decreased EMG activity, detrusor underactivity, and dilation of the prostatic urethra.
Answer= B.
Detrusor external sphincter dyssynergia occurs in spinal lesions located between the pons and sacral spinal cord. It is characterized by detrusor overactivity and concomitant involuntary contraction of the external sphincter. This results in a narrowed or closed membranous urethra with a proximally dilated prostatic urethra.

92. A 76-year-old man with diabetes has hematuria. CT urogram shows a 5 mm filling defect in the distal right ureter. Ureteroscopic biopsy reveals a low grade, noninvasive urothelial carcinoma. The best treatment is:
A: nephroureterectomy.
B: ureteral stent and intravesical BCG.
C: segmental resection and ureteroureterostomy.
D: ureteroscopic tumor ablation.
E: distal ureterectomy and reimplantation.
Answer= D.
In an older patient with medical problems, ureteroscopic biopsy, electro-resection and laser destruction has been utilized to successfully manage small, low grade, non-invasive ureteral tumors. This approach may avoid nephroureterectomy or partial resection. Although, historically, distal ureterectomy and reimplantation has been considered, endoscopic management of solitary low grade tumors have become the preferred treatment. Upper tract BCG may be effective for high grade disease, but delivery of the agent is least consistent when relying on reflux around a ureteral stent.

93. The major site of action of aldosterone in the kidney is the:
A: proximal tubule.
B: juxtaglomerular apparatus.
C: ascending portion of Henle's loop.
D: collecting duct.
E: distal tubule.
Answer= E.
Aldosterone is a mineralocorticoid produced in the adrenal cortex. Its main site of action is in the distal tubule. Aldosterone acts on the distal renal tubule to promote the absorption of sodium and the excretion of potassium. The main stimulus for aldosterone release is decreased renal perfusion which causes the juxtaglomerular apparatus within the kidney to release renin. Renin promotes the conversion of angiotensinogen to angiotensin I. Angiotensin I is converted to angiotensin II which stimulates aldosterone release. Elevated potassium also stimulates aldosterone release, but is less potent than decreased renal perfusion.

94. The role of T cells in tumor immune response includes:
A: little role in tumor rejection.
B: expression of granules and perforins.
C: suppression of apoptosis.
D: down regulation of Fas ligand.
E: elaboration of interferon gamma to effect natural killer cells.
Answer= B.
T cell lymphocytes are central to the generation of an effective tumors, anti- infective, and transplant immune responses. In urological tumor, T cells with markers CD8+ and CD4+ can both destroy tumor cells by elaboration of cytoplasmic granules containing the pore-forming protein perforin, resulting in plasma membrane disruption. In addition, T cells can upregulate Fas ligand that can bind to Fas to induce apoptosis. The elaboration of interferon gamma is known to be critical in activation of other effector cells, such as macrophages.

95. A 60-year-old man has a grade 3, T1 urothelial carcinoma of the bladder. He receives the fifth of six weekly instillations of intravesical BCG. Twelve hours later, he has a temperature of 39.5°C, difficulty breathing, and hypotension. The most likely cause of this complication is:
A: reflux of BCG into the upper tracts.
B: acute UTI.
C: traumatic catheterization.
D: more virulent strain of BCG.
E: impaired immunological state.
Answer= C.
The majority of patients tolerate BCG instillation well. In 2,602 patients treated with different strains of BCG, high fever (>39 degrees C) was noted in 2.9% of patients. Life-threatening BCG sepsis was noted in 0.4%. Fever greater than 39.5 degrees C that does not resolve within 12 hours despite antipyretic therapy is potentially dangerous. Since most cases of BCG sepsis are associated with intravenous absorption of BCG it is recommended that BCG not be given until at least one week after tumor resection. In the patients who died from BCG sepsis, almost all cases had traumatic catheterization before instillation therapy or they were treated too early after TURBT or biopsy. Treatment should include isoniazid 300 mg, rifampin 600 mg, and ethambutol 1200 mg daily. After antituberculosis drugs are started, corticosteroids may be given if the patient is toxic. Given the timing of the signs and symptoms in relation to the BCG instillation, acute UTI is much less likely to be a cause.

96. A ten-year-old boy with precocious puberty has bilateral nodular testes. Testicular ultrasound reveals multiple bilateral solid masses. The serum 17- hydroxyprogesterone is elevated and the karyotype is 46 XY. The next step is:
A: cranial MRI scan.
B: abdominal CT scan.
C: testicular biopsy.
D: bilateral orchiectomy.
E: corticosteroids.
Answer= E.
This boy has CAH and presents with precocious puberty. Elevation of the serum 17-hydroxyprogesterone helps in making this diagnosis. Treatment with corticosteroids is therapeutic. Young children are often inconsistent in taking medications. In those who stop medications or are on an insufficient dose, multiple "adrenal rests" develop in the testes. They will usually resolve with appropriate steroid treatment. Occasionally they may become autonomous. Biopsy is unnecessary, but if done, will look identical to Leydig cell tumors, but without Reinke crystals. Radiographic imaging of the pituitary and adrenal is not needed unless there is other evidence of pituitary stimulation or excess adrenal androgen production.

97. A 52-year-old woman underwent a percutaneous needle biopsy of the right kidney. Two months later, an abdominal bruit is heard in the right upper quadrant and a renal arteriogram demonstrates an arterio-venous fistula in the lower pole of the right kidney. She is asymptomatic with blood pressure well-controlled by medication and has a serum creatinine of 1.4 mg/dl. The next step is:
A: observation.
B: selective embolization.
C: partial nephrectomy.
D: operative ligation.
E: complete nephrectomy.
Answer= A.
Most traumatic AV fistulas of the kidney, such as those caused by percutaneous biopsy, are asymptomatic, small, and will close spontaneously without intervention. Symptomatic fistulas can cause

hypertension, persistent hematuria, or high-output heart failure. Symptomatic AV fistula can be managed by embolization, operative ligation of the feeding vessels, or partial/complete nephrectomy depending upon their size and location.

98. An asymptomatic 62-year-old man has an isolated 3.5 cm biopsy proven local recurrence in the right renal fossa four years after a right radical nephrectomy for a localized (T3a NoMo) RCC. The metastatic evaluation is otherwise negative. The best management is:
A: immunotherapy.
B: radiation therapy.
C: VEGF inhibitor.
D: surgical excision.
E: tyrosine kinase inhibitor.
Answer= D.
Local recurrence after radical nephrectomy is uncommon (approximately 2-4% of cases). Although local recurrence of renal cancer often precedes the development of widespread metastases, a significant percentage have local disease only and may be salvaged with surgical excision. Resection can provide a long-term cancer free status for about 30-40% of patients in this situation. Radiation therapy can help with palliation. The role of immunotherapy is unclear in this setting. Tyrosine kinase and VEGF inhibitors have not been evaluated in this setting.

99. An eight-year-old boy is an unrestrained passenger in a MVC. He complains of left abdominal pain and has left upper quadrant tenderness on physical examination. He is hemodynamically stable and has microscopic hematuria. CT scan shows a normal right kidney. The left kidney is markedly hydronephrotic and there is perinephric contrast extravasation. The left ureter is not visualized. The next step is:
A: observation and antibiotics.
B: renal scan.
C: retrograde pyelogram.
D: percutaneous nephrostomy.
E: renal exploration.
Answer= C.
This boy likely has an injury to the collecting system in a chronically obstructed kidney. The most likely sites of extravasation are the dilated pelvis or fornix. However, a UPJ disruption is also possible and needs to be excluded. The radiographic sign of importance is the absence of distal ureteral filling during the CT scan. Renal salvage is enhanced by early diagnosis which may be best confirmed by retrograde pyelography in preparation for a definitive repair. Prior to any type of open exploration, the status of the ureter needs to be defined. At the time of the retrograde pyelogram, a stent may be left in the ureter distal to the disruption to facilitate surgical dissection.

100. An 82-year-old man has troublesome nocturia. He has hypertension, atrial fibrillation, and glaucoma. He takes diltiazem, digoxin, atorvastatin, tamsulosin, and eye drops. On exam, he has peripheral edema. Baseline creatinine is 1.2 mg/dl and serum sodium is 136 mEq/l. A relative contraindication to the use of desmopressin in him is his:
A: concurrent medications.
B: history of glaucoma.
C: peripheral edema.
D: atrial fibrillation.
E: hypertension.
Answer= C.
Elderly patients have an elevated risk of hyponatremia from desmopressin use, and in general, it should be discouraged. In this patient, the presence of hyponatremia and potential CHF (i.e., peripheral edema) increases his risk. Hypertension, glaucoma, atrial fibrillation are not contraindications in and of themselves.

101. A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney; the left kidney is normal. The most likely diagnosis is:
A: adrenal cortical carcinoma.
B: juxtaglomerular cell tumor.
C: pheochromocytoma.
D: renal cell carcinoma.
E: aldosteronoma.
Answer= B.
The findings in this patient are a classic history as well as laboratory and radiographic findings of a juxtaglomerular cell tumor. These rare, benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. Patients with aldosteronomas should have suppressed plasma renin levels. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by release of sympathetic amines and do not cause hypokalemia.

102. A 47-year-old calcium oxalate stone former wishes to go on a high animal protein, low carbohydrate, weight loss diet. The following changes in urinary chemistries are expected:
A: calcium: ↑ uric acid: ↑ citrate: ↓ pH: ↑
B: calcium: ↑ uric acid: ↑ citrate: ↓ pH: ↓
C: calcium: ↑ uric acid: ↓ citrate: ↑ pH: ↓
D: calcium: ↓ uric acid: ↓ citrate: ↓ pH: ↑
E: calcium: ↓ uric acid: ↑ citrate: ↓ pH: ↓
Answer= B.
Consumption of a low carbohydrate high protein diet delivers a marked acid load to the kidney, increases the risk for stone formation, decreases estimated calcium balance, and may increase the risk for bone loss. This leads to increased urinary calcium and uric acid excretion, decreased citrate excretion, and lowering of urinary pH.

103. A 37-year-old man with HIV and ESRD is being evaluated for a living donor kidney transplant from his sister. A possible contraindication to transplantation is:
A: HIV infection.
B: CD4 counts < 100.
C: detectable HIV viral load.
D: concomitant administration of immunosuppressive agents.
E: co-infection with hepatitis C virus
Answer= B.
The presence of HIV in a patient has historically been considered a contraindication to transplantation because of the following concerns: (1) a stable HIV-positive candidate will immunologically decompensate with immunosuppression; (2) the viral load will increase and/or immunosuppression may enhance HIV mutations; (3) the pharmacokinetics and pharmacointeractions of antiretroviral agents and immunosuppression may lead to subtherapeutic effects or toxicity; and (4) the public perception of offering transplantation to HIV- positive patients will lead to diminished support for donation. Limited experience prior to now suggested that organ transplantation is effective in selected HIV- positive patients. Several key papers have been recently published on the topic of organ transplantation in HIV-positive patients, as well as important clinical research developments that would not preclude HIV status as a contraindication as previously practiced. The concomitant use of immunosuppressive agents does not seem to increase the virulence, recurrence, or progression of HIV disease. The co-infection with hepatitis C virus also is not an absolute contraindication unless there is evidence of cirrhosis. CD4 is a primary receptor used by HIV-1 to gain entry into host T cells. CD4 counts < 100 is one definition of AIDS and is an absolute contraindication to transplantation.

104. The chemotherapeutic agent that may be associated with increased absorption with continent diversion is:
A: methotrexate.
B: 5-fluorouracil.
C: vincristine.
D: cisplatin.
E: Adriamycin.
Answer= A.
Although chemotherapy is generally well tolerated in patients with urinary diversion, methotrexate toxicity has been documented. Methotrexate toxicity can be compounded in patients who require adjuvant therapy after radical cystectomy and neobladder construction due to reabsorption of this agent by the neobladder. Vigorous hydration and alkalinization of the urine along with liberal leucovorinrescue is indicated to reduce the likelihood of this complication. In patients with continent diversion receiving chemotherapy, consideration should be given to pouch drainage

during drug administration. 5-fluorouracil is rarely used in the treatment of invasive bladder cancer. Cisplatin, Adriamycin and vincristine are not reabsorbed by ileal mucosa.

105. While performing a videourodynamic study in a three-year-old child, the recommended rate of bladder filling is:
A: 10 ml/min.
B: 20 ml/min.
C: 30 ml/min.
D: 40 ml/min.
E: 50 ml/min.
Answer= A.
The rate of bladder filling (ml/min) is calculated by determining the child's predicted bladder capacity (average bladder capacity in ml = age in years + 2 X 30) and dividing the result by 10. In this case, (3+2) X 30 = 150/10 = 15 ml/min or less. It is important not to fill the bladder too fast as it may result in falsely low levels of detrusor compliance and may produce artifactual detrusor contractions. Filling at 10 percent per minute of the calculated bladder capacity (or less) avoids these problems.

106. A 32-year-old man has persistent penile pain three months after implantation of an inflatable penile prosthesis. Exam demonstrates no evidence of infection and asigmoid deformity of the shaft with a cylinder palpable under the skin. The best treatment is:
A: six weeks of oral antibiotics.
B: six weeks of I.V. antibiotics.
C: removal of prosthesis.
D: downsizing of cylinders.
E: patch graft to tunical albuginea.
Answer= D.
When a penile prosthesis that is too long is implanted, the patient may complain of pain that does not subside as healing takes place after device implantation. Alternatively, it may lead to erosion of the rod either into the meatus or through the glans. Buckling may also cause erosion through the tunica albuginea. Reoperation with placement of smaller rods usually relieves the pain and avoids impending erosion. Cylinders that are too long may result in a sigmoid (S) penile deformity that might lead to premature cylinder failure. Antibiotic therapy will not improve his pain and patching the tear in the tunica albuginea will fail secondary to the oversized prosthesis.

107. A 54-year-old woman undergoes an ileocecal pouch cutaneous urinary diversion two years after pelvic radiation for cervical cancer. Four months later, she has right lower quadrant pain and fecaluria. A pouchogram reveals contrast extending into the colon adjacent to the pouch. The next step is:
A: hyperalimentation.
B: bilateral nephrostomy drainage.
C: pouch endoscopy and fulguration of fistula.
D: catheter drainage and low residue diet.
E: colonoscopy.
Answer= D.
Entero-pouch fistulas have been reported after ileal and right colon urinary diversion. The diagnosis should be suspected in patients who present with gastrointestinal symptoms and metabolic acidosis. These fistulas are most common after pelvic irradiation. Conservative therapy is often effective with low residue diet and continuous pouch drainage. Further diagnostic evaluation with colonoscopy or pouch endoscopy is of little value, and biopsy or fulguration may enlarge the fistula. Bilateral nephrostomy drainage alone will not achieve maximal drainage of the pouch. Open surgical exploration may be required if this regimen fails.

108. Ultrasound of a 28-week-old fetus demonstrates normal kidneys and amniotic fluid. The bladder is not visualized on several ultrasounds. The most likely explanation is:
A: persistent cloaca.
B: bilateral ectopic ureters.
C: maternal dehydration.
D: bladder exstrophy.
E: patent urachus.
Answer= D.
The bladder is visible in the fetus at 14 weeks gestation. Nonvisualization of the bladder is seen in the fetus with poor renal function and oligohydramnios, cloacal exstrophy, bladder exstrophy and persistent cloaca. The finding of normal kidneys and normal amniotic fluid excludes bladder agenesis and ectopic ureters. The bladder is visualized with a patent urachus. Prenatally diagnosed bladder exstrophy demonstrates an absent bladder, anterior abdominal mass and low-set umbilicus on ultrasound examination.

109. A 32-year-old man has painful ischemic priapism lasting 36 hours and undergoes a unilateral cavernosal glanular shunt (T-shunt). In the operating room he becomes flaccid but his erection recurs within ten minutes. The next step is:
A: observation and pain management.
B: irrigate with phenylephrine.
C: contralateral T-shunt.
D: cavernosal-spongiosal shunt.
E: cavernosal-saphenous vein shunt.
Answer= C.
The T-shunt is a cavernosal-glanular shunt that is a simple shunt for the treatment of ischemic priapism. It has demonstrated success even after prolonged periods of ischemic erection with the majority of men preserving erectile function following treatment. An 11-blade is inserted through the glans and into the distal corpus cavernosum. It is then rotated 90 degrees and removed creating the "T". A Hegar dilator is then inserted into the incision and dilated down the length of the corpora. The penis is observed in the operating room for 15 minutes and if it remains flaccid a unilateral procedure is adequate. Should the erection return the next step is a bilateral procedure. Observation would not be appropriate at his time and irrigation would not be effective. A more proximal shunt is not indicated until continued failure of the T-shunt.

110. A 32-year-old man has clinical stage I seminoma of the left testis. At the time of radical orchiectomy, he undergoes a right testis biopsy because the right testis is atrophic. Biopsy of the right testis demonstrates testicular intra-epithelial neoplasia (CIS). The next step is 20 Gy to the retroperitoneum and:
A: right orchiectomy and androgen replacement.
B: platinum-based chemotherapy.
C: low-dose XRT to the right testis.
D: serial testicular ultrasounds.
E: repeat testis biopsy in six months.
Answer= C.
Involvement of the contralateral testis with intraepithelial neoplasia (CIS) occurs in 4-5% of patients with germ cell tumors. The presence of an atrophic contralateral testis appears to be a significant risk factor for this condition. While it is controversial, there does appear to be significant risk of developing tumor in the contralateral testis if left untreated. In an attempt to avoid a bilateral orchiectomy, localized radiation was introduced in 1985 as treatment of CIS in the contralateral gonad. Radiotherapy eradicates CIS cells to prevent cancer development and to preserve sufficient Leydig cell function. Low-dose XRT has been shown to be highly effective and more effective than chemotherapy in this setting while preserving Leydig cell function in most patients.

111. A seven-year-old girl has daytime incontinence that is not associated with infection. She has marked constipation and encopresis. Her physical examination reveals a normal appearing spine, and a normal neurologic examination. Her bladder is not percussible, and urinalysis is normal. The next step is timed voiding and:
A: spinal MRI scan. B: VCUG.
C: urodynamic evaluation.
D: oxybutynin.
E: bowel management.
Answer= E.
In the absence of a UTI, a VCUG or urodynamic evaluation is overly invasive. A spinal MRI scan is not warranted in the absence of any neurologic abnormality or spinal defect. Although oxybutynin is acceptable empiric treatment, it will likely make the constipation worse. Aggressive treatment of the constipation has been shown to benefit not only the encopresis, but also the urinary incontinence.

112. A 47-year-old woman underwent closure of a bladder laceration at the time of an abdominal hysterectomy. Because of persistent leaking for two months, a transvaginal vesicovaginal fistula repair was required. Leaking recurs after another five

months and a vaginal cuff fistula is found. CT urogram is normal and cystoscopy reveals a 1 cm fistulous tract with patchy, raised edema. The next step is:
A: serial cystoscopy and repair when edema resolves.
B: cystoscopy and biopsy of fistulous tract.
C: injection of fistula tract with fibrin sealant.
D: immediate vaginal repair with Martius flap.
E: immediate abdominal repair with omental interposition.
Answer= B
In this particular patient, the presence of persistent edema and tissue changes in a patient who has failed repair five months earlier may indicate undetected malignancy. If there is any suspicion, a biopsy should be performed to rule out malignancy. If benign, surgical repair may be carried out by either a vaginal or transabdominal approach at the discretion of the surgeon when the tissue quality appears suitable for repair. This may be determined by serial cystoscopy and
vaginal exams as indicated. Fibrin sealant has not been shown to be effective in repair of large fistula.

113. A 52-year-old man on steroids for rheumatoid arthritis has a solitary, 2.0 cm, high- grade urothelial carcinoma on the posterior bladder wall with focal invasion of the lamina propria. The best management is:
A: intravesical BCG.
B: intravesical BCG with interferon.
C: intravesical mitomycin C.
D: partial cystectomy.
E: radical cystectomy.
Answer= C.
Overall, about 70% of patients with unifocal stage T1a (focally or minimally invasive) can be successfully managed with intravesical therapy, so at least one course of intravesical therapy should be strongly considered. Immunomodulators such as BCG or interferon are dependent on an intact immune system, and tend to be less effective in immuno-suppressed patients. A course of mitomycin C followed by close surveillance would be the best option, followed by surgery if refractory disease was encountered. Although partial or radical cystectomy may be indicated in some patients with high grade T1 tumors, these treatment options are overly aggressive for the patient with first time, focal T1 disease.
Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR,

114. A two-month-old boy has a 4 cm right adrenal mass. Biopsy reveals neuroblastoma. There are metastases to the skin, liver. and bone marrow. Skeletal survey is negative. The next step is:
A: observation.
B: flank irradiation.
C: multi-agent chemotherapy.
D: right adrenalectomy.
E: total body irradiation and bone marrow transplant.
Answer= A.
This infant has stage IV-S neuroblastoma. This can include involvement of skin, liver, and bone marrow without bone metastases on skeletal survey. Observation therapy alone in children less than one year of age is usually sufficient and metastases regress. In older children, or in cases where metastases do not regress, chemotherapy is used.

115. A decrease in renal injury with SWL can be accomplished by:
A: starting at a low energy setting.
B: starting at a low energy setting and pausing for 3-4 minutes before increasing the energy setting.
C: increasing the shockwave firing rate.
D: increasing the shockwave firing rate and starting at a low energy setting.
E: starting at a slow shockwave firing rate and pausing for 3-4 minutes before increasing the shockwave firing rate.
Answer= B
Recent research suggests that the power level of the priming dose is not the factor responsible for the protection from injury from SWL. Instead, it was observed that inclusion of a 3 to 4 minute pause following the priming dose was protective, while increasing the power setting without this delay did not result in reduced injury.Increasing the shockwave firing rate would increase the renal injury incurred.

116. An increased risk of postoperative urinary retention following interstitial brachytherapy is associated with a:
A: prostate volume of 25 gm.
B: Gleason score 8-10.
C: preoperative hormonal deprivation therapy.
D: preoperative postvoid residual of 125 ml.
E: preoperative AUA Symptom Score 18.
Answer= E.
Acute urinary retention following interstitial brachytherapy occurs between 12- 35% of patients. Risk factors include a prostate volume of > 35 grams, a post- treatment volume of > 55 grams, number of needle punctures > 33 and an AUA Symptom Score of > 12. The postvoid residual and the uroflow score were not predictive of acute urinary retention following brachytherapy. Initial management includes catheter drainage and alpha-blocker therapy. Some studies have added a short course of steroid therapy to reduce the acute inflammation.

117. A six-year-old girl has a pelvic fracture from a MVC. Her perineal examination shows blood at the vaginal introitus. A CT scan with contrast shows normal kidneys and a pelvic hematoma. The next step is:
A: urethral catheter.
B: VCUG.
C: retrograde urethrogram.
D: cystoscopy, vaginoscopy and cystogram.
E: suprapubic tube bladder drainage.
Answer= D.
This girl is at risk for having sustained a significant urethral, vaginal, rectal, or bladder injury that may be underestimated by initial examination. Examination under anesthesia is essential to evaluate the extent of injury. Cystography is also needed to rule-out a bladder injury. Retrograde urethrography is unnecessary and technically difficult in a female. Suprapubic tube placement would not be necessary before the urethra is evaluated. A VCUG would be helpful if a catheter can be passed easily, however, will not rule-out a vaginal injury. A urethral catheter may be able to be passed in a very cooperative patient, however, the possibility of a vaginal injury would still need to be evaluated. If an unrecognized bladder neck or urethral injury is found, immediate reconstruction will be necessary to avoid complications such as pelvic abscess, urinary fistulization, and increased risk of incontinence.

118. The threshold for hematuria that merits further evaluation is:
A: urine dipstick positive for hemoglobin.
B: at least 1 RBC/hpf.
C: 3 or more RBC/hpf.
D: > 10 RBC/hpf.
E: gross hematuria.
Answer= C.
According to the American Urological Association Best Practice Policy on Asymptomatic Microscopic Hematuria in Adults, the recommended definition of microscopic hematuria is 3 or more red blood cells per high-power field on microscopic evaluation of urinary sediment from two of three properly collected urinalysis specimens.

119. A 55-year-old obese man undergoes a radical cystoprostatectomy. A Mainz pouch (cecum-terminal ileum neobladder) is performed, but the pouch will not reach to the urethral stump due to mesenteric tension. The next step is:
A: divide the ileocolic artery.
B: divide the right colic artery.
C: divide the middle colic artery.
D: convert to a continent cutaneous diversion.
E: create an ileal loop conduit.
Answer= B.
Occasionally, surgeons will encounter difficulty approximating an orthotopic urinary diversion to the urethral stump in a patient with a particularly deep pelvis. When the pouch includes the right colon, the surgeon may obtain additional length on the mesentery by dividing the right colic artery. This artery, along with theileocolic, middle colic, left colic, sigmoid artery and the three hemorrhoidal

arteries make up the arc of Drummond and provide considerable leeway when mobilizing the colon. The right colic artery often arises off the superior mesenteric artery, but can sometimes be seen arising directly from the middle colic or ileocolic artery. Division of the right colic artery can be performed safely and will often result in greater length on the mesentery of a neobladder that includes the cecum or distal right colon. Division of the ileocolic artery will result in ischemia and/or necrosis of the neobladder and division of the middle colic artery will not result in any additional length on the mesentery and may also compromise the bowel anastomoses. Alternate diversions should not be considered until all possible options have been exhausted.

120. Paternity potential in males with spina bifida correlates positively with:
A: serum testosterone level.
B: sacral neurologic level of lesion.
C: reflexogenic erections.
D: shunt-dependent hydrocephalus.
E: glans penis sensation.
Answer= B.
Studies on sexual function in males with spina bifida have demonstrated that paternity is associated with an L5 or sacral neurologic level. This neurologic level was present in 80% of patients who fathered children. This is in contrast to bladder function, which does not correlate well to the neurologic level of the lesion. The ambulatory status and presence of a ventriculoperitoneal shunt are other important factors associated with paternity. Serum testosterone levels are usually normal. Reflexogenic erections are present in the majority of spina bifida patients and are not predictive of paternity.

121. The lithotriptor generator with the largest focal zone is:
A: electrohydraulic.
B: piezoelectric.
C: electromagnetic.
D: microexplosive.
E: electroconductive.
Answer= A.
Electrohydraulic, or spark gap lithotriptors have the largest focal zones, and is likely the reason for their widespread acceptance. Piezoelectric devices have small focal zones, with wide apertures of entry, thus minimizing patient discomfort. Electromagnetic machines have smaller focal zones, but typically achieve higher pressures. Microexplosive lithotriptors have not been widely accepted due to the requirement for lead azide pellets, and electroconductive machines are currently not utilized but retained smaller focal zones. Ease of targeting with larger focal zones may lead to improved efficacy.

122. A 58-year-old man is to undergo TUR and immediate postoperative instillation of 40 mg Mitomycin C for recurrent low grade multifocal Ta urothelial carcinoma of the bladder. At the time of resection, a 2-3 cm region of perivesical fat is seen in the resection bed. The next step is:
A: administer Mitomycin C.
B: administer Mitomycin C, leave indwelling catheter.
C: withhold Mitomycin C, leave indwelling catheter.
D: administer Adriamycin, leave indwelling catheter.
E: wait 48 hours, administer Mitomycin C.
Answer= C.
The use of immediate postoperative Mitomycin C has been shown to significantly reduce the risk of recurrence following resection of a bladder tumor. While the mechanism of action is not entirely clear, it is felt to be due to destruction of floating tumor cells and/or residual foci of cancer within the resection bed. At the time of transurethral resection, exposed fat within the resection bed is indicative of extraperitoneal perforation. The degree of extravasation can often be estimated at the time of resection by visual inspection, or it may require a cystogram. In cases of extravasation, administration of Mitomycin C is not advisable due to the risk of local necrosis and bladder contracture. In this case, it would be advisable to simply place a catheter and withhold the Mitomycin C.

123. A three-month-old boy underwent left dismembered pyeloplasty. An ultrasound nine months postoperatively demonstrates worsening hydronephrosis and severe cortical thinning. A renal scan demonstrates the left kidney to contribute 22% of total renal function, and T1/2 > 40 minutes. Retrograde pyelography demonstrates a 2 cm stricture at the anastomosis and an intrarenal pelvis. The next step is:
A: retrograde endopyelotomy.
B: antegrade endopyelotomy.
C: repeat dismembered pyeloplasty.
D: ureterocalicostomy.
E: nephrectomy.
Answer= D.
The infant has a failed pyeloplasty. In redo repairs, one must assess the anatomy carefully to determine whether a redo dismembered technique can be performed. When a long segment of stricture is present with an intrarenal pelvis, a repeat dismembered repair may not be technically feasible and/or will be at high risk forfailure. Ureterocalicostomy is the most appropriate choice since it bypasses the need for an anastomosis to the pelvis. With this technique, it is important to remove as much parenchyma around the lower pole calyx as possible to allow a widely patent tension free anastomosis. If a large and redundant extrarenal pelvis were present, one could consider a spiral flap repair. Endoscopic manipulations in a one year old male infant with a long stricture is not efficacious. With 22% function nephrectomy is not appropriate.

124. Roux-en-Y gastric bypass increases the risk of kidney stones by which change in the urine:
A: increased oxalate and decreased citrate.
B: increased oxalate and increased calcium.
C: decreased volume and increased calcium.
D: decreased volume and increased sodium.
E: decreased citrate and increased sodium.
Answer= A.
After a Roux-en-Y gastric bypass, the primary abnormalities noted that predispose to stone formation include low urine volume, high urine oxalate, and low urine citrate. Urinary sodium and calcium decrease after surgery. Urine volumes are low for the first year following gastric bypass due to the small stomach capacity resulting in decreased oral intake. High urinary oxalate is reflective of the fat malabsorptive component of the surgery which results in saponification of calcium thereby leading to increased oxalate absorption from the gut.

125. The most common adverse event associated with sorafenib in the treatment of metastatic RCC is:
A: hand-foot skin reactions.
B: cardiac ischemia.
C: hemorrhage.
D: neuropathy.
Answer= E.
Sorafenib is an oral agent used for the treatment of advanced RCC. It was approved by the FDA in December, 2005. It is a small molecule inhibitor of Raf kinase and VEGF receptor kinase. In a large, randomized study, sorafenib showed improved progression free survival. Side effects of sorafenib, as compared to placebo included hand-foot skin reactions (40% vs 16%), hemorrhage (15.3% vs. 8.2%), and hypertension (16.9% vs. 1.8%). Neuropathy and joint pain were relatively uncommon. Most of the hand-foot skin reactions were mild and occurred within the first six weeks of treatment. Management of hand-foot reactions includes administration of topical agents for symptomatic relief, temporary treatment interruption or dose modification for moderate skin reactions and permanent discontinuation in severe cases.

126. When obtaining percutaneous access to a continent urinary reservoir for removal of calculi, the most important factor to consider is:
A: stone composition.
B: stone volume.
C: stone number.
D: adjacent structures.
E: type of diversion.
Answer= D.
It is important to select the ideal puncture site for percutaneous access into a continent reservoir to avoid injury to adjacent structures. Computed tomography or ultrasonography can be used to guide access to avoid injury to adjacent bowel. Stone volume and

number may influence the decision to proceed with endoscopic versus open access. Stone composition and type of diversion does not impact the outcome of the percutaneous procedure.

127. The benefit of hypertonic saline resuscitation after severe multitrauma is due to:
A: reduced inflammatory response.
B: reduced acidosis.
C: inhibited angiotensin II release.
D: restored intravascular volume.
E: repleted third space fluid loss.
Answer= A.
After shock or trauma, fluid resuscitation has been aimed at restoring intravascular volume and repletion of "third-space" fluid shifts. The colloid-crystalloid debate has focused on these end points. Although these arguments are most relevant immediately after injury when death is due to exsanguination, recent data has shown that early fluid resuscitation modifies the inflammatory response that leadsto multiple organ failure and late death. Experimental observations showed that hypertonic saline (HTS) can affect the immune response. Specifically, HTS can down-regulate the expression of polymorphonuclear cell adhesion molecules, improve microvascular flow, and preserve organ function. It has no direct effect on pH or angiotensin II. Interestingly, Lactated Ringer solution has been shown to be proinflammatory and could potentially aggravate the postinjury inflammatory response.

128. A 35-year-old alcoholic man with renal insufficiency undergoes a left radical orchiectomy for a NSGCT. His preoperative AFP was 100 IU/ml and beta-hCG was 85 mlU/ml. Two weeks later, AFP is 2 IU/ml and beta-hCG is 15 mlU/ml. His metastatic evaluation is otherwise negative. The most likely explanation for the marker elevation is:
A: hepatic dysfunction.
B: renal insufficiency.
C: hypogonadism.
D: normal marker decline.
E: residual yolk sac elements.
Answer= C.
The rate of tumor marker decline relative to expected half-life after treatment has been proposed as a prognostic index. The half life of AFP is five days. Beta-hCG is one to two days. Patients whose values decline according to half-life after treatment appear more likely to be disease free than those whose marker decline is slower or whose markers never return to normal levels. However, there are non- malignant causes of persistently elevated levels of both AFP and beta-hCG. Liver damage secondary to drugs, hepatitis and alcohol abuse may lead to an elevated AFP level. Beta-hCG may remain persistently elevated due to nonmalignant causes such as hypogonadism and marijuana use. In this patient, the most likely etiology is hypogonadism induced by alcoholism. This results in altered testis-pituitaryfeedback and secondary elevation of LH which cross-reacts with beta-hCG measurement, leading to false elevation of beta-hCG. HCG is not produced by yolk sac elements, but rather by syncytiotrophoblastic cells. Clearly, every effort should be make to exclude all false positive causes of tumor marker elevation before subjecting patients to unnecessary treatment.

129. A six-year-old boy with nocturnal enuresis has been treated with imipramine. He took an excessive dose last night and is lethargic this morning. The best plan is:
A: observation.
B: cardiac monitoring.
C: Kayexalate enema.
D: hemodialysis.
E: atropine.
Answer= B.
Tricyclic antidepressants (TCAs) (e.g. imipramine) can cause toxicity at doses of 10-20 mg/kg. A 50 mg/kg dose is likely to be fatal. ICAs are absorbed in the small bowel and have antimuscarinic actions. Tissue levels, especially in myocardium, are much higher than serum levels. Toxic effects are central and peripheral antimuscarinic actions (amine pump blockage that enhances catecholamine actions) occur as well. Emetics will be too late in this case, the urgent need is cardiac monitoring. Hemodialysis will take more than an hour to institute and is an incorrect priority. Kayexalate will not help. Atropine is contraindicated. Physostigmine, used in the past, doesn't help with the cardiac effects of TCAs and may cause its own rhythm disturbances.

130. Acetohydroxamic acid:
A: is a urease inhibitor.
B: reduces urinary oxalate.
C: is a calcium chelating agent.
D: converts cystine to cysteine.
E: converts glycoxalate to glycine.
Answer= A.
Acetohydroxamic acid (Lithostat), a urease inhibitor, may reduce the urine saturation of struvite and therefore retard stone formation. When given as an oral dose of 250 mg three times per day following complete stone removal, acetohydroxamic acid has been shown to prevent recurrence of new stones and to inhibit the growth of stones in patients with chronic urea-splitting infections. Complete blood counts should be monitored every three months due to the risk of hemolytic anemia with this medication.

131. A 60-year-old man has a rising PSA following external beam radiotherapy for prostate cancer. His PSA nadir is 0.5 ng/ml, and 1.1 ng/ml and 1.6 ng/ml at 12 and 18 months, respectively. The next step is:
A: observation.
B: prostate biopsy.
C: lymph node dissection.
D: salvage cryoablation.
E: hormonal ablation.
Answer= A.
PSA bounce is described as a rise in serum PSA levels, following radiotherapy, over one or two consecutive measurements followed by a decline to 'pre-bounce' levels. The bounce phenomenon is observed in 12-38% of patients following radiotherapy. The American Society for Therapeutic Radiology and Oncology (ASTRO) criteria for relapse following prostate cancer therapy is three consecutive rises in serum PSA from a nadir level of at least 0.5 ng/ml. In this patient, the presence of two rises following a nadir is possibly consistent with PSA bounce. The patient has not met the criteria (PSA > 2 ng/ml over nadir) for relapse, and as such, therapeutic intervention for recurrence is not warranted. Likewise, further evaluation with biopsy or lymph node sampling is not warranted until relapse is confirmed.

132. An eight-year-old boy has persistent urinary incontinence following newborn resection of a PUV. This is most likely due to:
A: detrusor instability.
B: vesicoureteral reflux.
C: non-compliant bladder.
D: incompetent bladder neck.
E: damaged external urethral sphincter.
Answer= A.
Urinary incontinence following surgery for a PUV is common. Although in some instances this is secondary to the primary surgery in the urethra or bladder neck,the most common finding is bladder dysfunction. Three patterns of bladder dysfunction have been identified in boys with valves: myogenic failure, detrusor overactivity, and decreased compliance with a small bladder. In prepubertal boys with persistent incontinence, bladder instability from overactivity is the dominant pattern.

133. A 42-year-old woman is undergoing a laparoscopic hysterectomy for dysmenorrhea and menorrhagia. An inadvertent 3 cm cystotomy is made at the level of the vaginal cuff. A urological consult is requested after the uterus is removed. In addition to repair, it is best to:
A: use a flap interposition.
B: place suprapubic tube.
C: perform cystoscopy.
D: perform bilateral retrograde pyeloureterograms.
E: utilize an open approach.
Answer= D.
Even though it may appear that only the bladder is injured, concomitant ureteral injuries must be ruled out at the time of the consult. The majority of ureteral injuries are not diagnosed intraoperatively. Laparoscopic hysterectomy is associated with higher incidence of ureteral injuries compared to open abdominal or vaginal approaches. To ensure that the ureters have not been also

inadvertently divided, cystoscopy with bilateral pyeloureterograms should be performed prior to closure of the cystotomy. The other choices are reasonable to consider as part of the cystotomy closure depending on the clinical situation. However, to prevent the situation of a missed ureteral injury, it is best to perform a cystoscopy with bilateral retrograde pyeloureterograms.

134. When performing a 7.5 MHz transrectal ultrasound on a 125 gm prostate, better imaging of the anterior transition zone may be achieved by:
A: decreasing gain.
B: increasing frequency.
C: decreasing frequency.
D: utilizing color Doppler.
E: utilizing power Doppler.
Answer= C.
In a large prostate, visualization of the anterior prostate is impaired by the depth of penetration required due to the anterior-posterior diameter of the gland. Reduction in frequency will increase the depth of penetration of the ultrasound, but will reduce the resolution of the image. In improving visualization of the anterior transition zone, the ability to identify peripheral hypoechoic lesions will be reduced. Reduction in gain will further decrease sensitivity of detecting abnormalities, but will not improve depth of penetration. Neither color Doppler nor power Doppler will improve visualization of the anterior gland if not easily visualized on grey-scale image.

135. The posterior surface of the kidney is adjacent to the:
A: quadratus lumborum muscle and diaphragm.
B: psoas and latissimus dorsi muscles.
C: diaphragm and psoas muscle.
D: transversus abdominis and psoas muscles.
E: paraspinous and intercostal muscles.
Answer= A
The diaphragm extends around the posterior aspect of the kidney. The anteromedial surface of the kidney is adjacent to the psoas major but the posterior surface lies adjacent to the quadratus lumborum. The transversus abdominus muscle is more ventral.

136. A 32-year-old HIV positive man has right epididymitis. The next steps are urethral swab for Gram stain and culture or urine PCR, empiric therapy and:
A: syphilis serology.
B: hepatitis B serology.
C: hepatitis C serology.
D: percutaneous epididymal biopsy.
E: culture of expressed prostatic secretions.
Answer= A.
Syphilis in the United States is a concern especially among HIV patients. Approximately 2% of screened men with HIV have positive syphilis serology. U.S. Preventive Services Task Force (USPSTF) recommends that men at increased risk should be screened for HIV and syphilis. Persons diagnosed with other sexually transmitted infections (i.e., chlamydia, gonorrhea, genital herpes simplex, human papilloma virus, and HIV) may be more likely than others to engage in high-risk behavior, placing them at increased risk for syphilis. Screening tests for syphilis include nontreponemal tests (VDRL or RPR) followed by confirmatory fluorescent treponemal antibody absorbed (FTA-ABS) or T. pallidum particle agglutination (TP-PA). For epididymitis in sexually active men aged < 35 years, the CDC recommends: (1) urethral Gram stain, (2) urethral culture or nucleic acid amplification (PCR) test for N. gonorrhea and C. trachomatis, (3) examination of first-void uncentrifuged urine for leukocytes if the urethral Gram stain is negative, and (4) Syphilisserology and HIV counseling and testing. Empiric therapy with Ceftriaxone 250 mg IM in a single dose plus Doxycycline 100 mg orally twice a day for ten days is indicated before laboratory test results are available. Culture of the expressed prostatic secretions and percutaneous epididymal biopsy are not recommended.

137. A 50-year-old man undergoes a radical orchiectomy, and is reported to have a pure seminoma. Serum beta-hCG is 342 mlU/ml, and AFP is 123 IU/ml prior to orchiectomy. CT scan reveals a 7 cm para-aortic mass. After four cycles of chemotherapy, the para-aortic mass is 1.8 cm and serum markers are normal. The next step is:
A: observation.
B: retroperitoneal radiation.
C: additional chemotherapy.
D: RPLND.
E: positron emission tomography (PET) scan.
Answer= D.
The production of AFP is limited to cells of the cytotrophoblast. In cases of testicular germ cell tumor, the presence of serum AFP confirms the tumor to be at least partially of nonseminomatous origin due to the presence of yolk sac elements. In this case, despite the fact that the histologic evaluation of the primary tumor demonstrates pure seminoma, the cancer must be treated as a NSGCT. In patients with residual mass following chemotherapy for metastatic NSGCT, a RPLND is indicated unless the mass shrinks to < 10% of its original size at the time of markernormalization. PET scan does not accurately characterize the nature of residual masses following chemotherapy as they may represent residual cancer, teratoma, or necrosis/fibrosis only. Given the serum marker normalization, additional chemotherapy is not necessary.

138. A two-year-old girl has a febrile UTI. An ultrasound is normal, but a VCUG demonstrates left grade 4 VUR. There is a compound upper pole calyx and simple calyces throughout the rest of the kidney. A DMSA scan of the left kidney at one week and nine months after the infection would most likely show:
A: One Week: normal, Nine Months: normal.
B: One Week: normal, Nine Months: upper pole defect.
C: One Week: upper pole defect, Nine Months: upper pole defect.
D: One Week: multiple defects, Nine Months: normal.
E: One Week: multiple defects, Nine Months: multiple defects.
Answer= C.
Renal injury after a UTI in a patient with VUR will usually occur at the site of intrarenal reflux, a condition that is associated with compound calyces. Conversely, injury is less likely in other areas of the kidney, where the calyceal configuration is simple and in which there is not likely to be intrarenal reflux. Injury will occur at the time of the first infection in susceptible areas, but may not be permanent. In the case of early aggressive antibiotic therapy, a temporary injury may heal and a permanent scar may be avoided with a return to normal on a DMSA scan at nine months.

139. A 72-year-old man with localized prostate cancer and diabetes mellitus takes an oral hypoglycemic as his only medication. He has a chronic serum creatinine of 2.1 mg/dl, with a normal upper tract on renal ultrasound, and a normal urinalysis. Which medication, if any, should be started prior to robotic radical prostatectomy:
A: none.
B: captopril 50 mg po bid.
C: enoxaparin 40 mg subcutaneous qd.
D: metoprolol 50 mg po bid.
E: ciprofloxacin 500 mg po bid.
Answer= D.
The patient is undergoing intermediate risk surgery with two intermediate clinical predictors of increased perioperative cardiovascular risk, diabetes, and renal insufficiency. The 2006 American College of Cardiology/American Heart Association practice guidelines recommend perioperative beta-blockade in these cases to reduce the incidence of myocardial infarction, heart failure or death. An angiotensin converting enzyme inhibitor such as captopril does not substitute for a beta-blocker, and while deep venous thrombosis prophylaxis with enoxaparin is indicated preoperatively, it is not necessary to begin dosage prior to surgery. In the absence of urinary tract infection, a fluoroquinolone will not lend additional benefit.

140. During surveillance of a 2.3 cm solid renal mass, the most reliable indicator of malignancy on imaging is:
A: T2 hyperintensity.
B: growth rate.
C: calcification.
D: location.
E: absence of fat.
Answer= B.
During observation of small renal masses, serial imaging is utilized to monitor tumor progression over time. While the likelihood of tumor increase with larger size of the tumor, the size and shape of

the tumor cannot generally distinguish a benign from a malignant renal tumor. The presence of fat in the tumor noted on imaging confirms the lesion to be an angiomyolipoma, but its absence does not allow the determination of the lesion to be malignant. Growth can occur in both benign and malignant solid renal tumors, however, of the choices listed, the best indicator of a malignancy is the rate of tumor growth on serial radiographic evaluations. To date, there is no radiographic feature that can reliably distinguish benign versus malignancy. Tumors with rapid enlargement are most likely to represent cancer. However, masses with zero or very minimal growth rates can be malignant. Larger tumors in particular may exhibit faster growth rates and are more likely to metastasize.

141. A ten-year-old boy has a perineal "butterfly" hematoma following a straddle injury. This suggests rupture of the:
A: tunica albuginea.
B: corpus spongiosum.
C: corpus cavernosum.
D: posterior urethra.
E: Colles' fascia.
Answer= B.
Rupture of the corpus spongiosum and anterior urethra will be manifest by a perineal "butterfly" hematoma, limited by Colles' fascia. The corpora cavernosa, tunica albuginea, and posterior urethra are unlikely to be involved in a straddle injury. Posterior urethral injuries occur above the pelvic diaphragm are usually associated with a pelvic fracture, and not as a consequence of a straddle injury.

142. Contrast-induced nephropathy in patients with renal insufficiency is best prevented by:
A: N-acetylcysteine.
B: natriuretic hormone.
C: hydration.
D: furosemide.
E: endothelin antagonist.
Answer= C.
Radiocontrast media leads to a reversible decline in renal function in 10-30% of high risk patients, including diabetics and those with renal insufficiency. Administration of fluids before and after contrast media reduces the incidence of contrast-induced nephropathy, although the exact fluid regimen, including the type of fluid and the means of administration (oral versus IV) has not been clarified. N- acetylcysteine along with peri-procedural hydration can prevent contrast nephropathy; however, because of the inconsistent results, this agent is not routinely recommended for the prevention of contrast induced nephropathy. The other agents listed will not prevent contrast-induced nephropathy.

143. A 67-year-old man undergoes TURBT for a large muscle-invasive bladder tumor along the trigone. Physical exam reveals a large, fixed bladder mass. CT scan reveals no lymphadenopathy, but severe bilateral hydroureteronephrosis is present. His serum creatinine is 2.5 mg/dl following placement of bilateral percutaneous nephrostomy tubes. The next step is:
A: carboplatin-based chemotherapy and XRT.
B: neoadjuvant cisplatin-based chemotherapy.
C: neoadjuvant carboplatin-based chemotherapy.
D: radical cystectomy.
E: radical cystectomy and adjuvant cisplatin-based chemotherapy.
Answer= C.
Muscle-invasive bladder cancer associated with bilateral hydronephrosis has a poor prognosis, as this portends at a minimum extravesical disease. While there is some debate as to whether neoadjuvant vs. adjuvant chemotherapy is preferable in patients with cT3N0 bladder cancer, most clinicians agree that neoadjuvant chemotherapy is the preferred approach. Bilateral percutaneous nephrostomy tubes are advisable to minimize nephrotoxicity associated with chemotherapy. In addition, the chemotherapeutic regimen administered in patients with renal insufficiency is modified and often carboplatin is substituted for cisplatin. Bladder-sparing protocols, while occasionally acceptable in patients with muscle-invasive disease, are contraindicated in patients with hydronephrosis.

144. A 52-year-old man has lethargy and weakness. His serum laboratory values are: sodium 115 mEq/l, potassium 4.5 mEq/l, chloride 80 mEq/l, bicarbonate 23 mEq/l, BUN 8 mg/dl, creatinine 0.8 mg/dl, uric acid 2.9 mg/dl (normal 3.6 - 8.5 mg/dl). The most likely diagnosis is:
A: Addison's disease.
B: congestive heart failure.
C: cirrhosis with ascites.
D: inappropriate ADH secretion.
E: chronic diarrhea.
Answer= D.
All of the listed conditions can cause hyponatremia but the syndrome of inappropriate antidiuretic hormone secretion (SIADH) is the only one associated with hypouricemia and a normal serum BUN and creatinine. SIADH is due to sustained endogenous over-production of ADH. Patients with SIADH reach a steady state in which body water is expanded by water retention but in which natriuresis prevents edema. Relative volume expansion results in an increased GFR, tubular sodium wasting and reduced net tubular absorption of creatinine and uric acid. Volume contracted states such as Addison's disease and chronic diarrhea are associated with hyperuricemia and pre-renal azotemia. In congestive heart failure and cirrhosis, serum uric acid is in the high normal range and the BUN andcreatinine are often elevated.

145. A 23-year-old woman with cystic fibrosis takes nutritional supplements, Vitamin C, and antibiotic prophylaxis to prevent respiratory infections. She has hyperoxaluria and recurrent calcium oxalate stones. The most likely cause of her stones is:
A: Vitamin C therapy.
B: reduction of intestinal Oxalobacter formigenes.
C: high calcium diet.
D: cystic fibrosis-associated ileal absorption disorder.
E: dietary glycine excess.
Answer= B.
Chronic antibiotic use may reduce normal levels of Oxalobacter formigenes in the intestine. This anaerobe metabolizes as much as 50% of ingested oxalate. High calcium diets are associated with decreased oxalate absorption. Few cystic fibrosis patients have ileal absorption disorders. Vitamin C and glycine, while associated with oxalate metabolism, are unlikely to increase urinary levels significantly. An emerging treatment for reduced intestinal Oxalobacter formigenes is probiotics.

146. A 64-year-old man undergoes a six core biopsy for a PSA of 5.6 ng/ml. Pathology is a Gleason 6 (3+3) prostate cancer in a single core involving less than 10% of the tissue. The other cores are normal. He prefers active surveillance. The next step is:
A: MRI scan with endorectal coil.
B: initiate finasteride.
C: repeat prostate biopsy with 12 or more cores.
D: check PSA quarterly and repeat biopsy in one year.
E: counsel patient that he is not appropriate for active surveillance.
Answer= C.
Active surveillance is a reasonable option for patients with low-risk prostate cancer. Specifically, patients with a Gleason score of 6 or less, PSA below 10 ng/ml and low tumor volume may be appropriate for active surveillance. This patient's risk profile makes him a reasonable candidate for this approach. However, a six-core biopsy is likely inadequate tissue sampling to truly identify indolent disease. Therefore, initiation of active surveillance protocol with quarterly PSA and repeat biopsy in one year is premature and immediate systematic prostate rebiopsy is the next step. Additional imaging, with either bone scan or pelvic CT or MRI scan, is unnecessary in low-risk patients and would be inappropriate in this setting. There is no data supporting the use of finasteride in the management of prostate cancer.

147. The periurethral prostatic glands in a young man:
A: comprise the bulk of the prostate.
B: comprise a small portion of the prostate.
C: empty into the ejaculatory duct.
D: are derived from the Wolffian duct.
E: are vestigial remnants.
Answer= B.
Embryologically the prostate develops from the urogenital sinus during the third fetal month. The prostate develops from mesoderm to form the inner zone while the outer zone develops from endoderm. These zones form concentric rings around the prostatic urethra.

Generally speaking the inner zone eventually develops benign prostatic hyperplasia (BPH) and the outer zone is where cancers later form. In younger patients, the periurethral glands within the prostate are not prominentsince BPH has not yet developed.

148. A 41-year-old woman with endometriosis has intermittent left flank pain, gross hematuria, dysuria, and urgency that coincides with her menstrual cycle. A CT scan reveals mild left ureteral obstruction and no stones. Cystoscopy and cytology are normal. The next step is:
A: tamoxifen.
B: gonadotropin-releasing hormone agonist.
C: flutamide.
D: ureterolysis.
E: bilateral salpingo-oophorectomy.
Answer= B.
Endometriosis of the urinary tract involves the ureter, typically the distal third, in 15-20% of cases. Although most patients with ureteral obstruction associated with endometriosis are asymptomatic, signs and symptoms may occur cyclically and include flank pain, dysuria, urgency, hematuria and frequent urinary tract infections. A trial of hormonal therapy using gonadotropin-releasing hormone agonists (Lupron) or medroxyprogesterone (Danazol) should be initiated for mild symptomatic obstruction when there is good preservation of renal function. For more severe obstruction associated with significant periureteral fibrosis, surgical intervention to correct the obstruction, with or without hysterectomy and bilateral salpingo-oophorectomy, is advisable.

149. Osteoporosis in men with prostate cancer undergoing androgen deprivation can be prevented by:
A: weight loss.
B: intermittent androgen deprivation therapy.
C: Vitamin D.
D: calcium.
E: pamidronate (Aredia).
Answer= E
Osteoporosis is a well-known side effect of androgen deprivation therapy (ADT) in men with prostate cancer resulting in an increased risk of pathologic fracture and other complications. Urologists need to consider the risk of this complication and try to minimize it in men undergoing ADT. While weight loss is generally good for patients, it has minimal effect in preventing osteoporosis in this patient population. In fact, obesity may be protective to some degree. While intermittent ADT may reduce the amount of osteoporosis, changes in bone density have been seen in men who were on ADT for as little as nine months. Patients who are undergoing ADT should be started on calcium and Vitamin D, as studies have shown deficiencies in these substances in men who receive ADT. However, this will not prevent osteoporosis. To date, only two substances have been shown to prevent osteoporosis in men with prostate cancer undergoing ADT: pamidronate and zoledronic acid. Pamidronate and zoledronic acid are bisphosphonates. The mechanism of action is inhibition of bone resorption via action on osteoclasts or osteoclast precursors. While alendronate can prevent osteoporosis in the general population of male patients, it has not been studied in men on ADT and may not be potent enough to prevent bone loss, although it is often used in this setting.

150. Dilated Cowper's ducts seen on urethrography are:
A: lateral to the membranous urethra.
B: posterior to the prostatic urethra.
C: anterior to the bulbous urethra.
D: posterior to the bulbous urethra.
E: posterior to the membranous urethra.
Answer= D.
Cowper's glands are located on each side of the membranous urethra within the urogenital diaphragm. The duct of each is approximately 2.0 cm long and passes through the urethral opening in the urogenital diaphragm along the posterior aspect of the bulbous urethra and opens into the posterior aspect of the bulb.

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1. Transcatheter arterial embolization is an acceptable alternative to pretransplant native nephrectomy for patients with:

A: Goodpasture syndrome.
B: severe proteinuria.
C: VUR.
D: symptomatic polycystic kidneys.
E: a history of pyelonephritis.
ANSWER=B.

Current indications for pretransplant nephrectomy may include hypertension not controlled by dialysis and medication, persistent renal infection, renal calculi, or renal obstruction. Additional indications include severe proteinuria or polycystic kidneys symptomatic from infection, severe bleeding, or massive enlargement. Of these indications for pretransplant nephrectomy, only severe proteinuria can safely and reliably be managed by pretransplant transcatheter embolization and infarction.

2. A 45-year-old hypertensive man with a family history of renal failure is noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complains of marked dysuria. He is admitted with a presumptive diagnosis of pyelonephritis. Urine culture has been sent. Initial antibiotic should be:

A: gentamicin.
B: ampicillin.
C: cephalexin.
D: ciprofloxacin.
E: nitrofurantoin.
ANSWER=D.

Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology including renal cysts, calculi, infection, hemorrhage, and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, levofloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices,

3. A 48-year-old man undergoes radical cystectomy with a Studer-type orthotopic urinary diversion. Three months postoperatively, he complains of frequency and day and nighttime incontinence. Videourodynamics reveal capacity of 300 ml, detrusor pressure at capacity is 10 cm H20, Valsalva LPP is 130 cm H20, and PVR is 75 ml. The next step is:

A: observation.
B: alpha-blocker therapy.
C: CIC every two to three hours.
D: placement of an artificial urinary sphincter.
E: augmentation of his orthotopic diversion.
ANSWER=A

The length of time postoperatively after orthotopic diversion influences continence results. The reservoir capacity can and does increase over the first six to twelve months and even longer in patients with anti-refluxing afferent limbs (e.g. Studer type). CIC will decrease incontinence but frequent CIC will prevent the reservoir from increasing its capacity over time. Alpha-blocker therapy may relax the proximal urethra and exacerbate incontinence.

4. In central (pituitary) diabetes insipidus, the nephron segment that contains the most dilute fluid is the:

A: proximal convoluted tubule.
B: descending limb of Henle's loop.
C: ascending limb of Henle's loop.
D: distal convoluted tubule.
E: collecting duct.
ANSWER=E

Central diabetes insipidus involves a defect in the production or release of ADH from the hypothalamo-neurohypophyseal system. ADH affects the permeability of the distal tubule and collecting duct to water from the filtrate. With diminished ADH production, the distal tubule and collecting duct reabsorb less water from the filtrate yielding concentrated blood and dilute urine. The most dilute urine will be in the collecting duct.

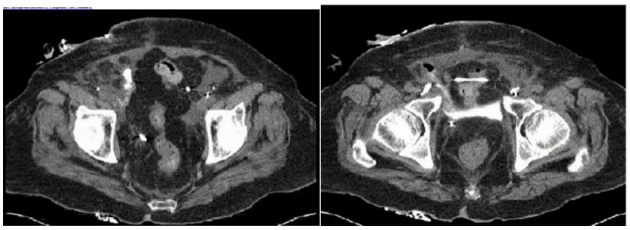
5. During PCNL, a collecting system perforation is noted. The first sign of significant extravasation of irrigant into the peritoneal cavity is:

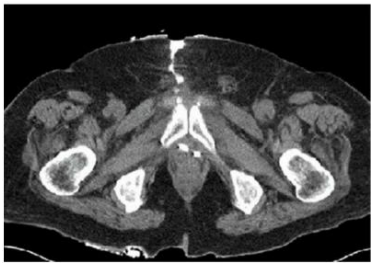
A: hypotension.
B: hypercarbia.
C: abdominal distension.
D: narrowed pulse pressures.
E: increasing ventilatory pressures
ANSWER=D

Narrowed pulse pressures (rise in diastolic pressure) precede difficulty with ventilation, hypercarbia and a rise in central venous pressure. Extravasated irrigant increases abdominal pressure leading to decreased venous return and thus narrowing the pulse pressure. Distension is not appreciated in the prone position until later in the course. Hypotension would signal the possibility of significant hemorrhage. Increasing ventilatory pressures is a later sign when there is significant fluid in the peritoneal cavity and when the patient is returned to the supine position.

6. A 77-year-old man has a retracted stoma and clear fluid leaking from his midline incision three weeks after radical cystectomy and ileal conduit diversion. Three images from a CT loopogram are shown. The next step is percutaneous pelvic drainage and:

A: stomal catheter.
B: loop endoscopy, fulguration
C: fascial repair.
D: stomal revision.
E. exploration, repair of leak.





ANSWER=A

A delayed urinary leak following urinary reconstruction should lead the clinician to suspect tissue ischemia/necrosis. In these cases, the leak is unlikely to resolve with observation alone. Fascial repair is unnecessary unless signs of dehiscence are present. Maximal drainage of the reconstructed segment is essential in order to minimize the output of the leak. In this case, the CT image demonstrates leakage from the proximal end of the conduit. Given the presence of stomal retraction, catheter drainage of the conduit

may decompress the leak. Given the pooling of contrast in the pelvis, a percutaneous drain is also advisable in order to control the fistula, minimize the risk of local abscess, and to protect the fascia from further dehiscence. While this patient may ultimately require stomal revision, it would not be advisable until determining if the leak will heal with conservative therapy. Early exploration and repair is difficult given the intense local inflammatory reaction, and it is likely to result in a high risk of treatment failure given the condition of the local tissues.

7. A 27-year-old man states that since a radical orchiectomy for stage A seminoma six months previously, the frequency and quality of his erections have been poor. He received XRT to periaortic nodes. The last treatment was two months after the orchiectomy. His chest x-ray, serum markers, glucose, and testosterone are normal. The next step is:
A: intracavernosal injection therapy.
B: sexual dysfunction counseling.
C: intraurethral alprostadil.
D: nocturnal penile tumescence studies.
E: testosterone patch.
ANSWER=B.
The patient should be told that during the early months after surgery, depression and loss of vigor are common along with an impaired sense of body image and mood disturbances. Patients cured of testis cancer rarely have persistent emotional disturbances. Sexual drive does not appear to be permanently disrupted by curative therapy. Treatments such as testosterone should be avoided. With time and reassurance, he should recover his normal libido and potency. Concomitant use of PDE5 inhibitors may also be helpful to reestablish confidence. Reassessment of such patients one year after treatment has shown that depression and mood disturbances have usually cleared.

8. Sepsis after PCNL best correlates with:
A: preoperative urine culture.
B: stone culture.
C: length of procedure.
D: blood loss.
E: collecting system violation.
ANSWER=B
Two recent studies showed that the results of pre-operative voided urine cultures failed to correlate with either stone cultures or renal pelvic urine cultures obtained at the time of ureteroscopy or PCNL. Furthermore, the occurrence of SIRS (systemic inflammatory response syndrome) correlated with positive stone or renal pelvic urine cultures, but not with voided urine cultures. Another recent prospective study found that the occurrence of post-operative SIRS was predicted by stone culture, but failed to correlate with pre-operative urine culture, length of procedure, stone free rate or the use of supra- versus sub-costal access. Although typically the results of a stone culture are not available until at least 48 hours post-operatively, these findings can prompt a change in the choice of antimicrobial coverage in the septic post PCNL patient.

9. A 56-year-old man undergoes partial penectomy for pT2 squamous cell carcinoma. Examination reveals no inguinal adenopathy. The primary tumor characteristic most predictive of pathologic lymph node involvement is:
A: HPV status.
B: tumor thickness > 5 mm.
C: lymphovascular invasion.
D: corpora spongiosum involvement.
E: corpora cavernosal involvement.
ANSWER=C.
In a multi-institutional review, eight different factors including superficial growth pattern, grade,tumor thickness, involvement of corporal tissue and the urethra increased the likelihood of pathologic lymph node involvement. However, the factor most predictive of lymph node involvement was the presence of lymphatic and/or vascular invasion seen in the primary tumor. Although the presence of human papilloma virus infection in patients with penile cancer is common, there is no correlation to lymph node metastases risk.

10. Impaired ammonia production by the kidney will most likely result in:
A: calcium oxalate renal lithiasis.
B: decreased urine titratable acidity.
C: impaired urea excretion.
D: systemic alkalosis.
E: metastatic calcification.
ANSWER=B
Ammonia production allows the kidney to rid itself of acid without lowering the pH (titratable acidity). The term titratable acidity refers to the quantity of sodium bicarbonate required to titrate urine back to a pH of 7.40, which is similar to that of blood. Other buffers, such as uric acid and creatinine, contribute to the titratable acidity but only to a minor extent. Hydrogen ion (H%2B) is also secreted through the production of ammonium ion. Ammonia (NH4%2B) is produced from glutamine, primarily by proximal tubular cells. Ammonium excretion can increase significantly during systemic acidosis, which is the key mechanism for secreting excess H%2B because at very low urinary pH, titratable acid cannot increase much unless other ions such as ketoanions are being produced. Lack of ammonia production can result in a systemic acidosis which may be followed by demineralization of bones and uric acid lithiasis.

11. The condition associated with uric acid stone formation is:
A: insulin resistance.
B: thiazide therapy.
C: hyperthyroidism.
D: immobilization.
E: proximal RTA.
ANSWER=A.
Low urine pH is the most important pathogenetic factor in uric acid stone formation. The mechanism responsible for low urine pH in idiopathic uric acid stone formers is thought to be insulin resistance. Evidence in support of this link includes the findings that over 50%25 of uric acid stone formers are glucose intolerant, a disproportionate number of diabetics have uric acid stones, and there is a strong inverse correlation between urine pH and insulin resistance. In the kidney, insulin stimulates ammonia genesis in proximal renal tubule cells; in insulin resistant states, defective ammonia production and/orexcretion results in unbuffered hydrogen ions in the urine and an acid urine. Hyperthyroidism is associated with hypercalciuria and calcium stones. Likewise, Dent's disease, also known as X-linked recessive nephrolithiasis, is a hereditary condition characterized by hypercalciuria, nephrocalcinosis, kidney stones, proteinuria, progressive renal failure, and in some cases, rickets. Crohn's disease is associated with calcium oxalate stones as a result of low urine volume due to dehydration, low urine pH, and hypocitraturia due to metabolic acidosis and hyperoxaluria due to overabsorption of intestinal oxalate. Proximal RTA is not associated with kidney stones. Though thiazide diuretics may increase serum uric acid levels slightly, this does not pose a clinical risk to the patient and is not associated with increased urinary uric acid levels.

12. During radical cystectomy, the cephalad (proximal) limit of an extended pelvic lymph node dissection is the:
A: aortic bifurcation.
B: inferior mesenteric artery.
C: bifurcation of the common iliac artery.
D: the genitofemoral nerve.
E: the circumflex iliac vein.

ANSWER=B.
Extended pelvic lymph node dissection has been associated with an improved disease specific survival in patients with muscle invasive bladder cancer. Increasing the number of lymph nodes removed at lymph node dissection is associated with improved survival in the setting of both lymph node negative and positive disease. The cephalad limit of the extended pelvic lymph node dissection for bladder cancer is the inferior mesenteric artery. The bifurcation of the common iliac artery is the cephalad limit of dissection of the standard pelvic lymphadenectomy. The circumflex iliac vein and genitofemoral nerve are the caudal and lateral limits of dissection.

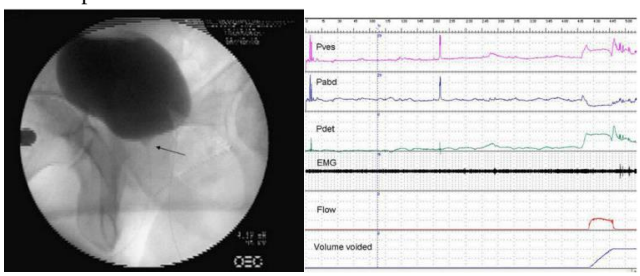
13. A 38-year-old woman develops incontinence ten days after an abdominal hysterectomy and anterior colporrhaphy for a large cystocele. She complains of leakage that is constant, but increases with an increase in abdominal pressure. The most likely diagnosis is:
A: overflow incontinence.
B: transient detrusor overactivity.
C: stress incontinence.
D: ureterovaainal fistula.
E: vesicovaginal fistula.
ANSWER=E.
All of these causes are possible. A vesicovaginal fistula is the most likely diagnosis of her incontinence in the setting of recent hysterectomy, and should be investigated even if stress incontinence is present. Both the timing and the nature of her leakage suggest vesicovaginal fistula is responsible. Ureterovaginal fistula may have a similar presentation, but is much less common and should be ruled out prior to repair of a vesicovaginal fistula. Patients with overflow incontinence rarely leak constantly and would be likely to complain of voiding difficulties.

14. A 55-year-old diabetic woman has new onset pneumaturia. The next step is:
A: urinalysis and culture.
B: abdominal and pelvic CT scan
C: cystogram.
D: barium enema.
E: cystoscopy.
ANSWER=A.
Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60%25 of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Common causes of fistula formation include diverticulitis, regional enteritis and sigmoid cancer.

15. A 65-year-old man develops lung and liver metastases four months after undergoing a left radical nephrectomy for clear cell carcinoma. Hemoglobin is 8.1 g/dl, Creatinine is 1.3 mg/dl, and his calcium is 13 mg/dl. The therapy most likely to improve survival is:
A: interferon-alpha.
B: interleukin 2.
C: temsirolimus.
D: sunitinib.
E: bevacizumab.
ANSWER=C.
Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase – this is a component of intracellular signaling pathways involved in growth/proliferation of cells. This medication suppresses angiogenesis and is given as a weekly IV infusion. Patients, such as this patient with three or more of the following "poor risk" features (serum LDH > 1.5 times upper limit of normal, Hgb below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of renal cell carcinoma to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs), were found to benefit from temsirolimus. Patients who received temsirolimus were 27%25 more likely to survive than those who received interferon-alpha. The other listed agents have not demonstrated a survival advantage in this group of higher risk patients.

16. The most important factor for successful vesicovaginal fistula repair using an omental interposition graft is:
A: the length of the omentum.
B: adequate mobilization of the gastroepiploic vascular pedicle.
C: adequate mobilization of the omentum by splenectomy.
D: ligation of the short gastric vessels.
E: vaginal closure using non-absorbable suture material
ANSWER=B.
In complicated vesicovaginal fistulae, a supravesical approach is appropriate. Since the surrounding areas may be poorly vascularized and fibrotic, omentum will supply good tissue into the area of the fistula. Even if the omentum is short, it can be mobilized to reach the pelvis if the full length of the gastroepiploic arch is mobilized. Turner-Warwick has stated "...even the shortest omental apron will reach the pelvis..." The spleen should not need to be mobilized for this. Nonabsorbable sutures should not be used because they may become exposed to the fistulous area of either the bladder or vagina and cause calculi or persistent fistulae. If the omentum overlaps the area of the fistulae, the fistulae will usually close even if the suture lines in bladder or vagina are tenuous, break down, or cannot be closed adequately

17. A 52-year-old man with erectile dysfunction undergoes videourodynamics for voiding dysfunction. A videourodynamic image, taken early in filling (at the point indicated by dotted line in theurodynamic tracing), is shown. The videourodynamics suggests a diagnosis of:
A: bladder neck dyssynergia.
B: cervical spinal stenosis.
C: Parkinson's disease.
D: Multiple System Atrophy (Shy-Drager).
E: multiple sclerosis.



ANSWER=D.
The cystogram demonstrates an open bladder neck at rest. The urodynamics tracing shows that there was no detrusor activity at the instant the image was obtained. An open bladder neck at rest in a male is highly suggestive of multiple system atrophy (MSA) in the absence of prior prostate surgery. Although other neurological diseases may result in an open bladder neck at rest, none of these are listed except MSA. Erectile dysfunction is often found in MSA, and this finding in concert with the open bladder neck at rest distinguishes this condition from Parkinson's disease which is often clinically similar in many other respects. Other symptoms of MSA may include other autonomic dysfunctions. Bladder neck dyssynergy would have a closed bladder neck with filling. Cervical spinal stenosis and MS would not typically have an open bladder neck at rest.

18. When compared to age-matched controls, men treated with etoposide and platinum-based chemotherapy for NSGCT are at increased long term risk of:
A: systemic infection.
B: pulmonary fibrosis.
C: cardiovascular disease.
D: ototoxicity.
E: autoimmune disease.
ANSWER=C.
The long term toxicity of bleomycin containing chemotherapy regimens includes pulmonary fibrosis however etoposide and platinum does not appear to be associated with this toxicity. There is no chronic increase in risk of systemic infection despite a short term risk of neutropenic sepsis during therapy. Several large scale epidemiologic studies have recently concluded that men treated with either radiation therapy or systemic platinum containing chemotherapy are at significantly increased risk of developing both fatal cardiovascular events as well as secondary malignancy after extended follow-up.

19. Renal blood flow is autoregulated by:
A: sympathetic nerves.
B: GFR.
C: cardiac output.
D: parasympathetic nerves.
E: afferent glomerular arteriolar resistance
ANSWER=E.
Autoregulation of GFR and renal blood flow occurs primarily through variations in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as distal tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFRs over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

20. In idiopathic calcium oxalate stone formers, Randall's plaques originate:
A: in the basement membranes of the thin loops of Henle.
B: within the renal collecting ducts.
C: in the renal interstitium.
D: on the urothelial surface of the papilla.
E: in the vasa recta.
ANSWER=A
In idiopathic calcium oxalate stone formers, crystal deposits composed of calcium phosphate originate within the basement membrane of the thin loops of Henle and enlarge into the surrounding interstitium and vasa recta. The plaques then progress to a subepithelial location where they ultimately erode through the papillary surface and form an anchored site for calcium oxalate stone formation. In patients with calcium oxalate stones of a different etiology, the site of initial crystal formation differs.

21. A 55-year-old man had a negative TRUS guided 10-core prostate biopsy two years ago for a PSA of 5 ng/ml. Now his PSA is 7 ng/ml. The next step is:
A: endorectal MRI scan prior to biopsy.
B: 12-core biopsies.
C: 12-core biopsies including anterior apical horn biopsies.
D: 12-core biopsies including transition zone biopsies.
E: saturation biopsies with patient under anesthesia.
ANSWER=C.
Repeat TRUS directed biopsies for a man with a prior negative biopsy should be at least 12 cores and should include anterior apical horn biopsies. The likelihood of a positive biopsy using this technique is between 35-50%25 and is similar to the yield of saturation biopsy techniques. Transition zone biopsies are also helpful but less critical than anterior apical biopsies. MRI scan can be helpful to direct repeat prostate biopsies but is expensive and is usually not the next step. Anterior apical biopsies can be obtained by transrectal or perineal approach.

22. An asymptomatic, 65 kg man with a serum creatinine of 2.0 mg/dl is evaluated for recurrent renal calculi. A 24-hour urinary creatinine measurement is 0.5 gm. This finding is most consistent with:
A: an incomplete collection.
B: low protein diet.
C: hydrochlorothiazide therapy.
D: resolving renal insufficiency.
E: unilateral obstruction.
ANSWER=A.
As long as renal function is at a steady state, 24-hour excretion of creatinine should be approximately 1 gm per day in a patient of this size. This test is most utilized because it is readily obtainable and has good validity and reproducibility. The daily variability is only about 10%25 and thus a specimen with only 0.5 gm of creatinine in a patient with chronic but stable renal insufficiency suggests an incomplete timed collection.

23. A pregnant woman has a ureteral calculus causing pain. She has failed observation and cannot tolerate a ureteral stent. The best definitive management is:
A: SWL.
B: ureteroscopy with EHL.
C: ureteroscopy with laser lithotripsy.
D: ureteroscopy with ultrasonic lithotripsy.
E: laparoscopic ureterolithotomy.
ANSWER=C.
Most calculi in pregnant women should be initially managed by observation with stenting reserved for persistent symptoms or infection. When intervention is indicated ureteroscopy using the holmium:YAG laser may be safely performed during pregnancy. SWL is never indicated in pregnancy due to concerns about fetal damage. The peak pressures from EHL are transmitted beyond the probe leading to similar concerns about damage to the fetus. Ultrasonic lithotripsy has the theoretical concern of damage to fetal hearing. Laparoscopic management, while possible is much more invasive than ureteroscopic approaches and may be difficult with a gravid uterus.

24. A 68-year-old man with advanced prostate cancer is to receive sipuleucel-T (PROVENGE®). Premedication should include acetaminophen and a(n):
A: antihistamine.
B: mineralocorticoid.
C: glucocorticoid.
D: benzodiazepine.
E: opioid.
ANSWER=A.
Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex-vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colony-stimulating factor (an immune-cell activator). In men with asymptomatic or minimally symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival was demonstrated compared to placebo. The most common side effects included chills, fatigue, and pyrexia which are common with release of cytokines. The recommended premedications are acetaminophen and an antihistamine. Glucocorticoids and opioids are sometimes given at the time of I.V. chemotherapy but are not indicated at the time of

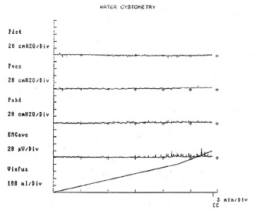
immune therapy. Mineralocorticoids and anxiolytics are not indicated for this immunotherapy.

25. Calcium reabsorption induced by parathyroid hormone and Vitamin D occurs primarily in the:
A: proximal convoluted tubule.
B: collecting duct.
C: thick ascending loop of Henle.
D: distal tubule.
E: proximal straight tubule.
ANSWER=D.
The site of action of both parathyroid hormone (PTH) and Vitamin D is on the distal tubule. Calcium resorption occurs in this region of the kidney architecture under hormonal influence. Calcium is reabsorbed in the proximal convoluted tubule as well, but the difference is that it is not under the influence of PTH. The collecting ducts and tubules as well as the loop of Henle are not responsible for calcium resorption and homeostasis.

26. A 48-year-old woman has abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:
A: serial creatinine measurements.
B: diuretic renogram.
C: cystoscopy and retrograde pyelogram.
D: antegrade pveloqram.
E: renal ultrasound.
ANSWER=B.
Radionuclide bone scans may reveal delayed concentration of tracer in the kidney due to a generous collecting system or due to true obstruction. This finding should be confirmed by a functional study such as an contrast CT scan or nuclear renogram, which should help determine whether or not this represents a functionally significant obstruction. More invasive procedures such as cystoscopy and retrograde pyelogram, or an antegrade pyelogram are not indicated at this point. Serial creatinine measurements will help follow overall renal function but will not determine functional obstruction. Renal ultrasound is an anatomic study and may show hydronephrosis but will not determine if it is functional.

27. A 68-year-old man undergoes a partial penectomy for a 4 cm squamous cell carcinoma with lymphovascular invasion and involvement of the subepithelial connective tissue. Physical exam reveals a 1.5 cm fixed, right inguinal mass. CT scans of the abdomen and pelvis are normal. His pathologic tumor stage (p) and clinical lymph node stage (c) are:
A: pTa cN1.
B: pT1acN1.
C: pT1b cN2.
D: pT1b cN3.
E: pT2 cN3.
ANSWER=D.
The 2010 AJCC staging for penile cancer made several significant changes. This patient has a pT1 tumor because of his subepithelial connective tissue involvement. Those patients with low grade tumors and without lymphovascular invasion are pT1a. This patient, however, has lymphovascular invasion and as a result is a pT1b. Patients with lymphovascular invasion are in fact at higher risk for metastatic disease. For the first time, nodal staging is divided into both clinical and pathologic staging schemes. With a palpable, fixed nodal mass, regardless of the size or unilateral/bilateral involvement, the clinical lymph node status is cN3.

28. A 70-year-old neurologically normal woman has random, large volume urinary incontinence. Medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and PVR is 40 ml. The urodynamic study shown does not reveal incontinence or definable abnormality. The most likely cause of her incontinence is:
A: overflow.
B: idiopathic detrusor overactivity.
C: detrusor overactivity with impaired contractility.
D: intrinsic sphincter deficiency.
E: vesicovaginal fistula.



ANSWER=B.
This patient has urgency incontinence secondary to detrusor overactivity, as indicated by the random nature of the incontinence. Even though idiopathic detrusor overactivity implies the presence of involuntary bladder contractions in the absence of neurologic disease, a CMG will fail to demonstrate involuntary bladder contractions in approximately 50%25 of patients with clinical urge incontinence. Detrusor overactivity with impaired contractility and overflow incontinence is not the cause in this case since the PVR is low. The primary cause of the incontinence is not stress (increase in abdominal pressure) related, particularly not intrinsic sphincter deficiency, since urinary leakage did not occur during Valsalva maneuvers. The characteristics of the incontinence are not consistent with a vesicovaginal fistula since the urinary leakage is not continuous.

29. The factor that promotes stone formation during pregnancy is:
A: increased parathyroid hormone levels.
B: absorptive hypercalciuria.
C: placental suppression of 1,25-dihydroxycholecalciferol.
D: decreased urinary qlvcosaminoglvcans.
E: decreased urinary citrate levels.
ANSWER=B.
During normal pregnancy there is a physiological state of absorptive hypercalciuria. Placental production of 1,25-dihydroxycholecalciferol increases intestinal calcium absorption and secondarily suppresses parathyroid hormone. Urinary citrate and glycosaminoglycan excretion (inhibitors of stone formation) are increased. Therefore, overall stone rate during pregnancy is unchanged.

30. A 75-year-old man underwent nephroureterectomy for pT3N0Mx ureteral cancer six weeks ago. He is now considered for adjuvant chemotherapy. He lives independently and maintains his own home; however, he cannot perform strenuous activity. He is out of bed most of the day. His ECOG (Eastern Cooperative Oncology Group) Performance Status is:
A: 0.
B: 1.
C: 2.
D: 3.
E: 4.
ANSWER=B.
The ECOG Performance Status, also called the WHO or Zubrod score runs from 0 to 5, with 0 denoting perfect health and 5 death. nA 0 - Fully active, without restriction. nA 1 - Completely ambulatory, but restricted in physically strenuous activity. Able to carry out work of a light or sedentary nature such as light housework or office work. nA 2 - Ambulatory and capable of all self care but unable to carry out any work activities. Out of bed > 50% of waking hours. nA 3 - Capable of only limited self-care and confined to a bed

or chair > 50% of waking hours. nA 4 - Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair nA 5 - Death

31. A 65-year-old man undergoes radical cystectomy and orthotopic neobladder urinary diversion for pT2b urothelial carcinoma of the bladder. A key maneuver for maintaining continence is:
A: maximizing the length of the neobladder.
B: minimizing the length of the urethra to prevent kinking.
C: placing an intraoperative urethral sling.
D: forming a funnel-shaped reservoir.
E: performing bilateral nerve-sparing surgery.
ANSWER=E.
Factors that may increase leakage in patients with an orthotopic neobladder include: shortened functional urethral length, non-nerve sparing, decreased membranous urethral sensation, and increased time after diversion (as patients age.) Formulation of a funnel-shaped reservoir in fact increases kinking and increases the likelihood of failure of spontaneous voiding. Nerve-sparing may in fact aid in the functionality of the neobladder although exact mechanism is unknown. No data exists for a placement of urethral sling being helpful in maintaining continence and may promote hypercontinence.

32. A 32-year-old man has recurrent calcium oxalate stone formation. Despite an oxalate restricted diet, his urinary oxalate is high. The next step is:
A: pyridoxine.
B: hydrochlorothiazide.
C: allopurinol.
D: alpha-mercaptoproprionyl glycine.
E: Vitamin B12.
ANSWER=A.
Pyridoxine reduces oxalate production in up to 50%25 of patients with mild hyperoxaluria. Pyridoxine, a component of Vitamin B6, is a co-factor for alanine:glyoxylate aminotransferase (AGT), which converts glyoxylate to glycine. In doing so, less glyoxylate is available as a substrate for LDH which leads to a decrease in endogenous oxalate production. The other agents will have no impact on urinary oxalate.

33. A 68-year-old woman on recommended daily allowance (RDA) vitamins develops CIS of the bladder and is starting intravesical immunotherapy. In an effort to maximize tumor response rates and minimize side effects she should receive induction and subsequent maintenance therapy with BCG and:
A: discontinue vitamins.
B: continue RDA vitamins.
C: initiate mega dose vitamin supplements.
D: interferon, and RDA vitamins.
E: interferon, and mega dose vitamin supplements.
ANSWER=B.
The use of both vitamin supplements and alpha interferon has become common in conjunction with BCG therapy. Recently a randomized prospective trial of 670 patients was completed to address these issues. BCG alone with RDA vitamins was associated with an equal disease free outcome when compared to combinations of interferon or mega dose vitamin supplements. Megadose vitamins showed no increased benefits when compared with RDA vitamins. All patients were treated with induction and maintenance BCG. Patients receiving interferon experienced greater side effects, particularly fever and constitutional symptoms. There is no compelling evidence to suggest that patient should discontinue RDA vitamins.

34. A 55-year-old multiparous woman has urge incontinence. Urinalysis is normal and physicalexamination demonstrates a Grade 3 cystocele. Urodynamics reveal a PVR of 100 ml, detrusor overactivity resulting in incontinence, and a detrusor pressure at maximum flow (8 ml/sec) of 50 cm H20. When the cystocele is reduced, no stress urinary incontinence can be elicited. The next step is:
A: antimuscarinic medication.
B: alpha-blocker therapy.
C: midurethral sling.
D: anterior colporrhaphy.
E: midurethral sling and anterior colporrhaphy.
ANSWER=D.
This patient suffers from bladder outlet obstruction secondary to a large cystocele as indicated by a high voiding pressure and low flow rate. The obstruction secondarily causes detrusor instability and subsequent urgency incontinence. Despite reducing the cystocele, no stress incontinence can be elicited indicating good support of the urethrovesical junction. The best treatment is to repair the cystocele with a technique such as anterior colporrhaphy. The absence of stress urinary incontinence precludes the need for a sling and if performed alone is likely to exacerbate the obstruction. Treatment with antimuscarinic medication in a patient with obstruction is likely to increase the PVR. Although alpha-blockers may be used off-label for primary bladder neck obstruction in women, the best treatment in this patient with a large cystocele is to correct the underlying abnormality.

35. A 72-year-old woman has had six symptomatic UTIs over the past year. These infections return shortly after antibiotic courses are concluded, and cultures have demonstrated significant colony counts of E. coli. Renal ultrasound is normal. The next step is:
A: ciprofloxacin prophylaxis.
B: nitrofurantoin prophylaxis.
C: oral low dose estrogen.
D: intravaainal estrogen.
E: lactobacillus.
ANSWER=D.
The efficacy of estrogen for the prevention of UTI in post-menopausal women has been demonstrated in several studies. There appears to be a higher effectiveness rate in topically applied estrogen in the vagina with an improvement in lactobacillus concentrations, decreased vaginal pH and a decrease in UTI episodes from 5.9 to 0.5 episodes per year. Antimicrobial prophylaxis may be used at low dose if topical estrogen fails. Lactobacillus probiotics, while effective in an investigational setting, have not been subject to the scrutiny of controlled trials.

36. A 69-year-old man with metastatic castrate resistant prostate cancer experiences symptomatic clinical progression following I.V. docetaxel and oral prednisone given every three weeks. In order to improve survival, the most appropriate next step is:
A: mitoxantrone.
B: sipuleucel-T.
C: docetaxel weekly.
D: cabazitaxel.
E: ketoconazole.
ANSWER=D.
A chemotherapeutic intervention proven to prolong survival in the setting of metastatic castrate resistant prostate cancer resistant to docetaxel is cabazitaxel. This regimen was FDA approved for this indication in 2010 and demonstrated a 30%25 reduction in the chance of dying of prostate cancer in a prospective phase III randomized trial. Mitoxantrone served as the control arm of the trial and has not been associated with a survival advantage in prostate cancer. Sipuleucel-T has been proven to extend survival in asymptomatic metastatic castrate resistant patients. Ketoconazole has not been proven to demonstrate a survival advantage in this

setting and switching to weekly docetaxel has also not been associated with a survival advantage. Abiraterone, an androgen biosynthesis inhibitor has reported a survival difference as well in a phase III trial compared against placebo.

37. A 60-year-old man has renal insufficiency due to atherosclerotic renal artery disease. The most important prognostic factor for successful renal revascularization to preserve renal function is:

A: duration of hypertension.
B: proportion of sclerotic glomeruli on renal biopsy.
C: serum creatinine.
D: presence of collateral blood supply on angiography.
E: presence of renal artery occlusion.
ANSWER=C.

Revascularization to preserve renal function in patients with atherosclerotic renal artery stenosis will most likely benefit those who have not yet sustained permanent global impairment of renal function. Complete occlusion of the renal artery does not necessarily preclude intervention, since renal viability may be maintained through the presence of collateral arterial supply. The Cleveland Clinic group has found that 89%25 of such patients with initial serum creatinine < 3.0 mg/dl could be expected to have stable or improved renal function after revascularization. However, renal biopsy to evaluate the severity of renal parenchymal involvement as a guide to revascularization was found to be helpful only if the initial serum creatinine exceeded 4.0 mg/dl. In addition to the absolute level of renal function, the rate of decline of renal function is an important determinant of outcome after intervention. Duration of hypertension does not predict recoverability in this settin.

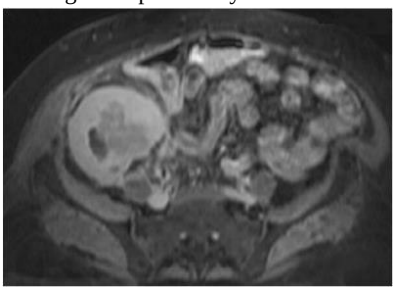
38. The most accurate method to determine the length of a graft needed for repair of an anterior urethral stricture is:

A: urethroscopy.
B: ultrasound.
C: VCUG.
D: retrograde urethrogram.
E: CT imaging.
ANSWER=B.

Prior to harvesting a Buccal graft or other graft for repair of an anterior urethral stricture, ultrasound can easily identify the area of stricture as well as the area of scarred urethra which must be resected to adequately restore urethral continuity using an onlay graft. Sonourethrography has been shown to be a useful adjunct to standard radiographic imaging of bulbar urethral strictures. Although it can aid in the visualization of the corpus spongiosum including vascular structures, calcifications, and periurethral fibrosis, incorporation of this information into surgical decision making algorithms has not followed. The primary benefit of ultrasound imaging is the lack of distortion created by the oblique position during retrograde urethrogram (RUG). Thus the sonogram will more accurately measure the length of the stricture. In bulbar urethral strictures of intermediate length, RUG will underestimate the true length of the stricture by up to 13 mm. VCUG can delineate the urethra proximal to the stricture unless the patient is unable to void, in which case sonography may allow visualization of the posterior urethra by vigorous suprapubic pressure under anesthesia. Urethroscopy will not demonstrate underlying spongiofibrosis, while VCUG and retrograde urethrography are subject to distortion and measurement error. CT urethrograms have only been used to identify acute injuries of the urethra .

39. A 21-year-old woman develops hematuria and a mass in the allograft 18 months after renal transplant. Needle biopsy of the mass reveals an Epstein-Barr virus positive lymphoproliferative tumor. MRI scan is shown. The next step is:

A: reduce immunosuppression.
B: ganciclovir.
C: rituximab.
D: chemotherapy.
E: allograft nephrectomy.



ANSWER=A.

Post-transplant lymphoproliferative disorders are most commonly non-Hodgkin lymphomas and are often associated with Epstein-Barr virus infection. The reported incidence ranges from 0.8%25 to 15%25, and varies with the type of immunosuppression utilized. These tumors may respond to drastic reduction or withdrawal of immunosuppression. Irradiation is not generally effective and may exaggerate the degree of immune compromise. Treatment with anti-viral medications such as ganciclovir may be beneficial following reduction in immunosuppression. Rituximab (anti CD-20) and chemotherapy are second line therapies for this type of tumor. Nephrectomy may be necessary, but is not the initial treatment.

40. A 35-year-old man with C5 quadriplegia has urinary incontinence managed by condom catheter drainage. Urodynamics reveal a detrusor LPP of 60 cm H20 at 150 ml. The next step is:

A: observation
B: CIC
C: antimuscarinic medication.
D: external sphincterotomy.
E: male sling.
ANSWER=D.

This patient has a high detrusor LPP that puts his upper urinary tract at risk. Since he is a quadriplegic and is managed with a condom catheter, the next best step is an external sphincterotomy that can be done surgically or pharmacologically with injection of botulinum. Observation and a male sling do nothing to reduce the effects of his bladder on the upper urinary tract. CIC is usually not feasible for quadriplegics and would not be helpful in this situation since the functional bladder capacity is only 150 ml. Antimuscarinic medication alone would also not be helpful since it would not decrease the detrusor leak point pressure.

41. A 52-year-old woman has acute onset of right flank pain. She has a long-standing history of diarrhea secondary to laxative abuse. Urinalysis shows numerous RBCs and a pH 6.5. While in the emergency room she passes a small stone. The most likely stone composition is:

A: xanthine.
B: uric acid.
C: struvite.
D: ammonium acid urate.
E: calcium phosphate.
ANSWER=D.

Ammonium acid urate stones are rare. They are found in patients with chronic diarrhea and a history of laxative abuse. These patients have low urinary sodium excretion. Their urinary citrate levels are usually low secondary to bicarbonate loss from the gastrointestinal tract. Urine pH is usually above 6.3; when urine pH is below 5.5 uric acid will likely precipitate. Ammonium acid urate stones are also found in patients with ileal resection or with large portions of their colon removed. Chronic diarrhea and UTIs are additional risk factors. Ammonium acid urate stones are relatively radiolucent and

may be mistaken for uric acid stones. Ammonium acid urate stones do not dissolve with alkalinization. Calcium phosphate stones typically form in the setting of hypercalciuria and/or hypocitraturia and are not associated with laxative abuse.

42. A 12-year-old boy undergoes a dismembered pyeloplasty with nephrostomy drainage for symptomatic UPJ obstruction. A nephrostogram performed two weeks later shows no drainage across the UPJ. The next step is:
A: repeat nephrostogram in two weeks.
B: MR urography.
C: antegrade renal perfusion study (Whitaker test).
D: convert the nephrostomy to a nephroureteral stent.
E: retrograde pyelography and ureteral stent placement
ANSWER=A.
After a successful dismembered pyeloplasty, it is not uncommon for a delayed opening of the anastomosis when using nephrostomy drainage. As long as the patient is doing well clinically, the best management during the early post-operative period is patience and repeat assessment to allow the anastomotic edema to subside further. Repeat nephrostogram in two weeks is the appropriate next step. Some have advocated a simple clamping trial of the nephrostomy tube and check the residual amount afterward. MR urography and a Whitaker study are unwarranted during the early post-operative period, as are the retrograde pyelography/stent placement and conversion of the nephrostomy tube to a nephroureteral stent. Stent placement could also damage the anastomosis.

43. A 62-year-old man with a serum creatinine of 4.7 mg/dl has persistent bleeding after TURP. The bleeding time is prolonged, but the PT, PTT, fibrinogen and platelet count are normal. The best treatment is:
A: aminocaproic acid.
B: Vitamin K.
C: fresh frozen plasma.
D: desmopressin.
E: platelet transfusion.
ANSWER=D.
Abnormal bleeding times in patients with renal failure are due to poor platelet aggregation. The coagulopathy may be reversed transiently by desmopressin, cryoprecipitate, conjugated estrogens, blood transfusions, erythropoietin, or dialysis. However, Vitamin K has no activity in the setting of reversing platelet dysfunction in ESRD. Similarly, fresh frozen plasma will affect the coagulation cascade but that shouldn't be abnormal in ESRD patients. Platelet transfusion is not helpful in the setting of normal platelet count as aggregation is not improved with more platelets.

44. The most common cause of catheter-associated UTI is:
A: improper catheterization technique.
B: urethral meatal bacteria.
C: break in the drainage system.
D: urinary drainage bag bacteria.
E: bacterial antimicrobial resistance
ANSWER=B .
Urethral meatal bacteria are the most frequent source of catheter-associated urinary tract infection. Unfortunately, topical urethral meatal antimicrobial agents do not prevent urinary tract infections and frequently cause overgrowth of resistant bacteria. Improper catheterization techniques, breaks in the system, and contamination of the drainage bag are less frequent but preventable causes of catheter- associated infection. Antimicrobials allow growth of resistant bacteria that are more difficult to treat but not more likely to cause infection.

45. A one-year-old hypertensive boy has a large, fixed abdominal mass. The most likely diagnosis is:
A: congenital mesoblastic nephroma.
B: Wilms' tumor.
C: neuroblastoma.
D: pheochromocytoma.
E: autosomal recessive polycystic kidney disease.
ANSWER=C.
This boy likely has a neuroblastoma. 50% of these tumors present in children under the age of two. These tumors are usually large, hard, and fixed. Children will often have numerous other paraneoplastic syndromes. Catecholamine release from the neuroblastoma can result in symptoms that can mimic pheochromocytoma including paroxysmal hypertension, palpitations, sweating, and headaches. However, pheochromocytomas tend not to be large masses like this and present in older children. Wilms' tumor usually presents in children a few years older and the masses are more likely to be smooth and less fixed. Hypertension can also be seen but is less common. Congenital mesoblastic nephroma is possible but is usually seen in infants a few months of age and is the most common renal tumor in children less than six months of age. Autosomal recessive polycystic kidney disease can present at any age with a wide spectrum of symptoms. It involves both kidneys and you should be able to palpate bilateral masses. When it presents early in life, it is usually severe and associated with significant renal insufficiency.

46. A 25-year-old woman has headaches and shortness of breath. Her blood pressure is 160/110 mmHg and serum creatinine is 1.0 mg/dl. She has an abdominal bruit and microscopic hematuria. Renal angiography demonstrates a 6 cm cirsoid arteriovenous fistula and a normal contralateral kidney. The best management is:
A: angiotensin converting enzyme inhibitor.
B: beta-blocker.
C: fistula ligation.
D: angio-embolization.
E: nephrectomy.
ANSWER=E.
Cirsoid arteriovenous fistulae are generally congenital in nature. This must not be confused with the much more common arteriovenous fistulae that results from iatrogenic kidney needle biopsies. Treatment for the congenital cirsoid lesion is indicated in patients with hypertension, cardiomegaly, heart failure, severe hematuria, or angiographic evidence of expansion of the lesion. ACE inhibitors and beta-blockers are not effective in the treatment of this anatomical defect. Cirsoid fistulas are not like a simple arteriovenous connection where one can just ligate a vessel and the lesion is resolved. Due to the complexity of the lesion, angio-embolization is generally considered difficult if not impossible and the patient is at risk for complications, particularly coil migration. Nephrectomy is the treatment of choice. The importance of this concept is to recognize that cirsoid arteriovenous fistula is a different entity than an iatrogenic arteriovenous fistula from biopsies and thus, the treatment is different.

47. A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli UTI. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:
A: absorptive hypercalciuria.
B: primary hyperparathyroidism.
C: ectopic hyperparathyroidism.
D: secondary hyperparathyroidism.
E: E. coli UTI.
ANSWER=C.
Among the conditions this man has, only the ectopic production of parathyroid hormone related peptide would explain his stone formation. E. coli is not a urease producing organism and thus

should not cause a stone. Given a history of peptic ulcer disease, a stone can form due to the development of milk-alkali syndrome, however, this is not one of the listed choices. The presence of hypercalcemia rules out secondary hyperparathyroidism. While absorptive hypercalciuria likely is playing a role in this patient, it is more likely due to the effect of ectopic production of parathyroid hormone related peptide due to the hypercalcemia present (homology to PTH in the first 13 amino acids). This ectopic production is most commonly seen with squamous cell carcinoma of the head, neck or lung (as in this case).

48. Recurrent UTIs in school-age girls is most often influenced by: A: race.
B: constipation.
C: nocturnal enuresis.
D: fever with initial infection.
E: VUR.
ANSWER=B
Recurrent UTI in school age girls are significantly related to the following factors; a family history of recurrent UTI, a history of infrequent voiding, diurnal incontinence, poor fluid intake, and constipation. Recurrent UTI rates have not been found to be significantly associated with isolated nocturnal enuresis, race, the presence of VUR, or whether or not the initial infection was febrile in nature.

49. A 58-year-old man has incontinence and prolonged urination six months following radical retropubic prostatectomy. Urodynamic evaluation with a 10 Fr catheter demonstrates normal bladder capacity and no detrusor overactivity. At 250 ml, Valsalva maneuver increases bladder pressure to 150 cm H20 without evidence of urinary leakage. The etiology of the incontinence is best determined by:
A: remove catheter and repeat Valsalva maneuver.
B: repeat urodynamic study with suprapubic catheter.
C: uroflowmetry.
D: retrograde urethrogram.
E: cystoscopy.
ANSWER=A.
The patient most likely has an anastomotic stricture and stress incontinence. The 10 Fr catheter is occluding the bladder neck, preventing demonstration of stress incontinence. A repeat urodynamic study with a suprapubic catheter is not necessary since the bladder capacity is known to be normal and there is no evidence of overactivity, and may be overly aggressive. Cystoscopy and retrograde urethrogram would demonstrate the stricture, however these studies would not demonstrate stress incontinence. The simplest study to determine the etiology of the incontinence is removing the urodynamic catheter with the bladder full and asking the patient to Valsalva in order to evaluate sphincteric function.

50. A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and postvoid dribbling. Renal ultrasound is normal and a pelvic ultrasound is shown. The most likely diagnosis is:
A: mesonephric duct cyst.
B: ectopic ureter.
C: Cowper's duct cyst.
D: prostatic utricle.
E: bladder diverticulum.

ANSWER=D.
In boys with proximal hypospadias, the prostatic utricle is often enlarged due to a lack of androgen action. In the female, this would represent the distal 1/3 of the vagina. The ultrasound demonstrates a midline cystic structure behind the bladder which is consistent with a prostatic utricle. While an ectopic ureter, bladder diverticulum, or mesonephric duct cyst could have a similar appearance, they are usually lateral in location. In addition, the history of proximal hypospadias would make a utricle most likely. A Cowper's duct cyst should be confined to the bulbous and prostatic urethra.

51. The blood supply to the left adrenal gland is derived from branches from the following arteries:
A: aorta and renal.
B: renal and splenic.
C: renal, splenic, and inferior phrenic.
D: aorta, renal, and inferior phrenic.
E: aorta, renal, and splenic.
ANSWER=D.
The blood supply for both the right and left adrenal glands is the same. The three sources for each adrenal gland are derived superiorly from branches of the inferior phrenic artery, in the middle directly from the aorta, and inferiorly from the ipsilateral renal artery.

52. A 72-year-old man develops dyspnea and hypertension following nephrectomy for RCC with adrenal sparing. The preoperative CT scan shows aortic calcification and a ventilation perfusion scan shows a low probability of pulmonary emboli. The best agent to treat the hypertension is a:
A: diuretic.
B: calcium channel blocker.
C: alpha-blocker.
D: ACE inhibitor.
E: angiotensin receptor blocker.
ANSWER=A.
This patient has a high probability of having renal artery stenosis. By removing one kidney the situation becomes analogous to the one-kidney, one clip model. In this situation, hypertension is largely maintained by volume and sodium excess. In the face of normal circulating angiotensin II (AII) levels, ACE inhibitors or AII antagonists do not result in marked decrease of blood pressure. Calcium channel and alpha-blockers also are not very effective until the volume overload has treated. Since the etiology of hypertension is intravascular volume expansion, the best choice is a diuretic.

53. A 45-year-old man has left flank pain four hours after a MVC. Physical examination is normal. His BP is 110/60mmHg, pulse is 80 bpm, and urinalysis demonstrates 5 RBC/hpf. The next step is:
A: cystogram.
B: CT scan.
C: renal ultrasound.
D: isotope renography.
E: observation.
ANSWER=E.
Most patients with blunt trauma and microscopic hematuria do not need imaging. The SIU Consensus Statement on Renal Injuries recommends imaging to detect blunt trauma only in selected patients. Adults with gross hematuria or microhematuria and hypotension have a major (e.g. Grades 3,4,5) injury rate of approximately 12.5%25 and thus warrant further imaging. These recommendations were derived from a number of studies including the seminal article by McAninch and associates in 1989. A review of 2,254 patients with suspected renal trauma seen from 1977 to 1992 was performed by McAninch and colleagues. Of the 1,588 blunt trauma patients with microscopic hematuria and no shock, three had significant injury but these cases were discovered during imaging or

exploratory laparotomy for associated injury. Follow-up of 515 of 1,004 patients (51%25) who did not undergo initial imaging revealed no significant complications. Adults with blunt renal trauma, microscopic hematuria and no shock (systolic pressure < 90 mm/Hg) or major associated intra-abdominal injuries can safely be spared radiographic imaging.

54. Using a monopolar loop, two > 3 cm bladder tumors are endoscopically resected from the bladder dome and left trigone. At the end of the procedure, suprapubic distension is noted. Blood drawn at this point is most likely to reveal:
A: anemia.
B: high glycine level.
C: hyperammonemia.
D: hyponatremia.
E: elevated BUN.
ANSWER=D.
This patient most likely has bladder perforation related to resection at the base of one of these superficial tumors. The bladder dome is often quite thin and is at high risk for perforation during resection. Also, obturator nerve stimulation can cause muscular spasm during resection of a laterally located tumor and this sudden motion may lead to perforation with the resecting loop. The monopolar current requires glycine or another non-electrolyte containing solution to be used in order to avoid dispersion of the current. Extravasation of the irrigation solution is the likely cause of the suprapubic distension. Glycine is quickly metabolized in the liver after absorption and is unlikely to be detected in the serum. However, the remaining extravesical fluid is free water and will cause acute dilutional hyponatremia as it is absorbed. Ammonia should not be elevated in this circumstance and serum BUN only goes up over a longer period of time if there is extravasation of urine with secondary resorption from exposed tissues. It is unlikely that there has been vessel injury from these superficial resections that is severe enough to cause anemia and suprapubic distension acutely.

55. A 62-year-old man has a right adrenalectomy for an 8 cm pheochromocytoma and 1 of 4paracaval lymph nodes reveals involvement with tumor. Serum metanephrines, MIBG scan, and blood pressure are normal postoperatively. The next step is:
A: observation.
B: somatostatin.
C: mitotane.
D: metyrapone.
E: aminoglutethimide.
ANSWER=A.
Approximately 10%25 to 20%25 of pheochromocytomas are malignant and malignancy is more common in tumors larger than 5 cm and in extra-adrenal tumors. Observation is the most appropriate therapy in a fully resected asymptomatic patient. Mitotane has proven palliative benefit in cases of metastatic adrenal cortical carcinoma. Metyrapone and aminogluthamide can be use to ameliorate hormonal production in metastatic adrenal cortical carcinoma. Somatostatin or octreotide has limited use in the palliative treatment of secreting metastatic pheomochromocytoma causing hypertension. Radiolabeled MIBG therapy can be useful in symptomatic patients with a positive MIBG scan for metastases. Combination chemotherapy has been used in the treatment of metastatic pheochromocytoma with some limited success. The most commonly used regimen is cyclophosphamide, vincristine, and dacarbazine.

56. An 82-year-old woman has asymptomatic E. coli bacteriuria. The next step is:
A: ciprofloxacin.
B: trimethoprim-sulfamethoxazole.
C: nitrofurantoin.
D: re-culture urine.
E: observation.
ANSWER=E.
Asymptomatic bacteriuria is particularly common in elderly women. There is evidence in adults that while 80%25 of patients with asymptomatic bacteriuria can be cured with a seven day course of oral antimicrobial therapy, long term cure rates are no better than placebo therapy because of reinfections in treated patients and spontaneous cures in untreated subjects. Moreover, treatment of asymptomatic infections, which are often associated with self agglutinating E. coli that have lost their O polysaccharide surface antigens, is frequently followed by a new E. coli infection with intact O surface antigens that are apparently responsible for acute symptoms. For this reason a sound argument can be made against treating an asymptomatic infection just to achieve low growth in the urine for a short period of time.

57. A 12-year-old girl with spina bifida and sigmoid cystoplasty has had multiple recurrent bladder stones. To reduce the risk of further bladder stones, the next step is:
A: potassium citrate.
B: antibiotic prophylaxis.
C: increase CIC frequency.
D: irrigate bladder daily.
E: conversion to a ileocystoplasty.
ANSWER=D.
Bladder stone formation is a frequently encountered complication after enterocystoplasty. The most effective preventive measure appears to be regular bladder irrigation. There is no definitive data to support other measures such as frequent CIC, potassium citrate, or antibiotic suppression to decrease the incidence of bladder calculi. Conversion to ileocystoplasty will not significantly reduce the risk of bladder calcul.

58. A 22-year-old man sustains a complete T8 spinal cord injury. Four weeks after the injury, the urodynamic profile is best characterized by:
A: detrusor overactivity, functional smooth sphincter, guarding reflex present.
B: detrusor overactivitv. functional smooth sphincter, guarding reflex absent.
C: detrusor areflexia. functional smooth sphincter, guarding reflex absent.
D: detrusor areflexia. smooth sphincter dyssynergy, guarding reflex absent.
E: detrusor areflexia, functional smooth sphincter, guarding reflex present
ANSWER=C.
Spinal shock after spinal cord injury is the result of absent somatic reflex activity and suppression of somatic and autonomic activity below the level of the injury. It typically lasts six to twelve weeks but can last up to two years. At four weeks after injury, spinal shock continues and is manifested by bladder areflexia, a functional smooth sphincter and an absent guarding reflex (the ability of the striated sphincter to contract during bladder filling). After spinal shock, a T8 SCI patient is likely to have detrusor overactivity, smooth sphincter synergia (because T8 is below sympathetic outflow) and absent guarding reflex

59. A 20-year-old man with cystinuria has recurrent calculi despite dietary therapy and hydration. The next step is:
A: acetohydroxamic acid.
B: Tham-E.
C: N-acetylcvsteine.
D: D-penicillamine.
E: alpha-mercaptopropionylglycine.
ANSWER=E.

Cystinuria should be managed initially with hydration and, perhaps, alkali therapy. The solubility of cystine does not significantly increase until the urinary pH reaches 7.5. At this pH, calcium phosphate precipitation may occur. Specific therapy would include use of either D-penicillamine or alpha-mercaptopropionylglycine (Thiola). D-penicillamine is less well-tolerated and approximately 50%25 of patients stop this therapy due to side effects. Tham-E is an alkalinizing agent used for irrigation. Acetohydroxamic acid is a urease inhibitor used for the management of infection stones. Captopril may be effective in reducing urinary cystine excretion in patients who have not responded to therapy with alpha-mercaptopropionylglycine and D-penicillamine or who are intolerant of these agents.

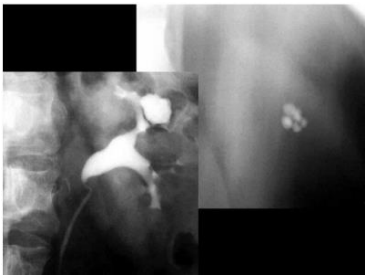
60. A ten-year-old boy has a three-day history of painless, gross hematuria with a tea color appearance. He was diagnosed with streptococcal pharyngitis two weeks ago. Urinalysis shows > 100 RBC/hpf and trace proteinuria. The next step is:

A: repeat urinalysis in two weeks.
B: VCUG.
C: non-contrast CT scan.
D: cystoscopy.
E: renal biopsy.
ANSWER=A.

This is a typical scenario of a pediatric postinfectious glomerulonephritis. It is often preceded by either pharyngeal or skin streptococcal infection between 7 to 21 days. The most common presentation is painless gross hematuria, with accompanying mild proteinuria, edema and hypertension. The C3 is low in 85-95%25, and the streptozyme test is positive when preceding infection was a streptococcal infection. The prognosis is excellent, and the treatment is supportive. Gross hematuria resolves in several days, and proteinuria decreases during the first several weeks. In this clinical scenario where the etiology of the gross hematuria is evident, further diagnostic tests are not indicated. Renal biopsy should be considered in the presence of persistent hematuria and proteinuria.

61. A 32-year-old man has left flank pain. Scout film and retrograde pyelogram are shown. The next step is:

A: CT scan without contrast.
B: CT scan with I.V. contrast.
C: SWL.
D: PCNL.
E: laparoscopic calyceal diverticulectomy.



ANSWER=A.

The image demonstrates an upper calyceal diverticulum. SWL is not recommended for the management of calyceal diverticulum with a narrow diverticular neck, as shown here, as fragments are unlikely to clear. PCNL and laparoscopy are appropriate alternatives for management of a calyceal diverticulum. However, before the choice of procedure can be made, it is important to determine whether the diverticulum is in an anterior vs. posterior location, as well as the relationship of the pleura and adjacent organs. PCNL would be utilized for a posterior diverticulum, while laparoscopy would be utilized for an anterior diverticulum. A CT scan without contrast will provide information for each of these variables. The CT scan will also determine the amount of parenchyma overlying the diverticulum. I.V. contrast would not be necessary as the retrograde pyelogram delineates the calculi within the diverticulum.

62. Homologous natural cycle artificial insemination for couples with male factor infertility due to oligoasthenospermia is:

A: only effective if placed intracervically.
B: only effective if placed intrauterine.
C: no more effective than timed vaginal intercourse.
D: most effective in women with tubal disorders,
E: most useful with counts of < 10 million per ejaculate
ANSWER=C.

Natural cycle refers to allowing the woman to ovulate on her own without pharmaceutical induced stimulation of the development of multiple follicles through ovulation induction. In men with male factor infertility due to abnormal semen parameters, natural cycle intracervical or intrauterine insemination (IUI) is no better than timed vaginal intercourse. Those techniques are only useful in infertility caused by mechanical problems such as hypospadias, retrograde ejaculation, or impotence. Natural cycle IUI is useful in pure cervical factor infertility. Pregnancy rates with IUI are increased in couples with abnormal semen parameters if the woman undergoes ovulation induction. Clomiphene citrate and gonadotropins are commonly used medications for ovulation induction. Women with tubal abnormalities are best treated with in vitro fertilization since inseminated sperm still need to ascend through the fallopian tubes. The higher the total motile sperm count the better the pregnancy rate, therefore those with a sperm count > 10 million will fare better than those with < 10 million.

63. A five-year-old boy with a history of PUV ablation is incontinent day and night. Renal ultrasoundshows normal kidneys bilaterally. VCUG shows a mildly trabeculated bladder without VUR and a patent urethra. PVR is 10 ml. He has normal daily bowel movements. The urinalysis is normal, and he has not had any UTIs. The next step is:

A: timed voiding.
B: nocturnal bladder drainage.
C: urodynamic study.
D: oxybutynin.
E: desmopressin.
ANSWER=A.

Voiding dysfunction and incontinence are common in boys with history of PUV. Over 80%25 will struggle with incontinence at age five. Nocturnal bladder drainage is usually indicated in the presence of high urinary output which can occur in boys with a history of PUV secondary to a concentrating defect. In such patients, significant hydroureteronephrosis is expected, which this patient does not have. Since he is not retaining urine after voiding, urodynamic test will likely demonstrate a pattern of bladder overactivity. However, it is appropriate to try conservative measures such as timed voiding prior to proceeding with more invasive testing such as urodynamics. Oxybutynin must be used with caution since a possible underlying myogenic dysfunction could lead to outright urinary retention. Desmopressin will not affect bladder dysfunction, which is the primary etiology of incontinence in boys with PUV.

64. An 85-year-old woman in an assisted living facility with a history of asymptomatic bacteriuria has two days of urinary frequency, urgency, and incontinence. A urine culture reveals 105 CFU/ml pan sensitive E. coli. The next step is:

A: observation.
B: PVR, cystoscopy, and upper tract imaging.
C: single dose antibiotic therapy.
D: antibiotic therapy for seven days.
E: topical vaginal estrogen.
ANSWER=D.

New onset symptoms in a geriatric patient with previously diagnosed asymptomatic bacteruria warrant therapy. Generally, seven days of therapy is suggested. Single dose therapy is inadequate

in this setting. There is no indication for catheterization as the patient is symptomatic and has a positive urine culture. Although this patient may need an evaluation for recurrent UTI's at some point, this evaluation can be delayed until she is adequately treated for her current symptomatic infection. Treating with estrogen alone in a settting of a symptomatic infection is insufficient. Initiating estrogen therapy in patients with recurrent symptomatic UTIs and atrophic vaginitis would be appropriate.

65. A 35-year-old man with a history of left renal colic has a 5 mm calculus in the left renal pelvis. Two months later, he complains of a burning sensation in the distal urethra. He has a normal urinary stream, and there are no associated bladder symptoms. Based upon this clinical history, the calculus is most likely located in the:
A: upper ureter.
B: mid-ureter.
C: intramural ureter.
D: bladder.
E: urethra.
ANSWER=C.
The location and nature of pain and/or colic can often times determine the location of ureteral calculi. Classically, patients who report flank discomfort with radiation anteriorly most often have stones located in the proximal or mid-ureter. More commonly, patients with stones in the distal ureter will report irritative voiding symptoms or pain radiating to the penis, scrotum, or labia. With a normal urinary stream and no associated bladder symptoms, it is unlikely that this patient has a stone either in the urethra or bladder, respectively.

66. A five-year-old girl is evaluated for a febrile UTI. She has daytime urgency and rare wetting. She is dry at night. Physical examination is normal. A renal US is normal and a VCUG shows bilateral grade 2 VUR. Spina bifida occulta at L5 is noted on the scout film. The next steps are prophylactic antibiotics and:
A: spinal MRI scan.
B: urodynamics.
C: timed voiding.
D: oxybutynin.
E: endoscopic correction of reflux.
ANSWER=C.
Spina bifida occulta is often identified on spine films. In a child with a normal physical examination the chance of a spinal cord abnormality is very small. These children should be treated the same as other children with urgency and daytime wetting. The initial management is timed voiding and maintenance of a voiding diary. Since it is very likely that this VUR will resolve with behavioral modification surgical management including endoscopic treatment is not indicated. Urodynamics would be reserved for those children that are refractory to medical management. MRI scan of the spine is not indicated.

67. A 48-year-old man has an AUA Symptom Score of 26 and a bother score of 4, recurrent UTIs, and significant bladder outlet obstruction documented on urodynamics. He wants to maintain fertility. He has failed medical therapy. The next step is:
A: CIO.
B: unilateral TUIP.
C: bilateral TUIP.
D: laser vaporization of the prostate.
E: TURP.
ANSWER=B.
A frequent complication of bladder outlet surgery for the treatment of obstruction is retrograde ejaculation. While this can be overcome with bladder harvested sperm most men who desire to maintain their fertility want normal antegrade ejaculation. The incidence of retrograde ejaculation is very high after TURP (up to 95%25). TUIP has a much lower incidence of retrograde ejaculation (0%25 to 37%25) and in many series is as effective as TURP. With a unilateral incision the incidence of retrograde ejaculation is less than 5%25, and with two incisions, it is 15%25. Laser vaporization has an associated risk of retrograde ejaculation that may be as high as TURP. While CIC would likely preserve antegrade ejaculation it is less desirable in a healthy young man.

68. The principal source of operator radiation exposure during endourologic procedures is:
A: the primary radiation beam.
B: radiation leakage from the x-ray tube.
C: radiation scatter from the patient.
D: radiation scatter from endoscopic instruments.
E: radiation scatter from the operating room walls and floor.
ANSWER=C.
Scattering of the primary beam from the patient is the primary source of radiation exposure to the operator during endourologic procedures. For this reason, maximizing the distance between the operator and the patient during fluoroscopy is a very effective method of reducing exposure. This explains why the fluoroscopy source is best placed under the patient to minimize radiation scatter to the operator.

69. The therapy with the highest success and lowest relapse rate for uncomplicated primary nocturnal enuresis is:
A: behavioral modification.
B: oxybutynin.
C: imipramine.
D: DDAVP.
E: nocturnal enuretic alarm.
ANSWER=E.
To date, the etiology of primary nocturnal enuresis is poorly understood. Research has shown that many children will have a reduced functional bladder capacity and an element of overactive bladder contractions while sleeping. Most children will also have an element of elevated arousal threshold while sleeping. Many single and combination treatment modalities have been used including the urinary alarm, anticholinergics, DDAVP, and imipramine. However, the modality that has the highest success and the lowest relapse rate is the nocturnal enuretic alarm. The correct use of the alarm is commonly misunderstood. It is best used in conjunction with the parents' involvement in which they confirm that the child awakens when the alarm goes off since the child will often sleep through the alarm. The child then gets up and voids to completion. The alarm therapy may take up to three to four months to be successful. Parents and children need to be educated on its correct use and the labor intensive nature of this therapy. When used correctly, success rates have been reported to be 70-80% with low rates of relapse. All forms of pharmacotherapy have lower rates of success and much higher rates or relapse. Behavior modification using techniques such as timed voiding or retention training are not effective tools to address nocturnal enuresis.

70. A 45-year-old woman has new onset frequency, urgency, and urge incontinence. Urinalysis is negative. Residual urine is 90 ml. CMG reveals phasic detrusor overactivity throughout filling. During volitional voiding, there is simultaneous contraction of the external sphincter. The next step is:
A: referral for neurological evaluation.
B: cystoscopy and cytology.
C: antimuscarinic therapy.
D: intradetrusor onabotulinum toxin injections.
E: intradetrusor and intrasphincteric onabotulinum toxin injections.
ANSWER=A.

This patient has detrusor external sphincter dyssynergia (DESD)based on the urodynamic evaluation. By definition, this implies the presence of a lesion between the pons and the lower spinal cord. Multiple sclerosis needs to be strongly considered given this patient's demographic information and urodynamic findings. Approximately 5-10% of patients with MS present initially with urologic complaints. Cystoscopy is not indicated, and bladder cancer is not likely in the age demographic and with a negative urinalysis. Antimuscarinic therapy may ultimately be helpful, though the residual would need to be monitored closely in the presence of DESD. Patients should be evaluated for possible neurological process due specifically to the finding of DESD. Onabotulinum toxin injections should not be utilized until a definitive diagnosis has been made.

71. A 60-year-old man sustains an avulsion injury of the scrotum. Ninety percent of the scrotal skin is lost. The next step after one week of debridement and local wound care is:

A: rotational thigh skin flap.
B: full thickness skin graft.
C: placement of testicles in thigh pouches.
D: split thickness skin graft.
E: scrotal skin mobilization and direct closure
ANSWER=D.

Scrotal reconstruction can be performed in many ways depending on the characteristics of the patient, mechanism of injury, and degree of skin loss. Limited skin loss can be managed with mobilization of remaining scrotal skin and direct closure as the scrotal skin is very pliable and will expand to cover relatively large defects. In this case a 90% loss makes this option impossible. More extensive skin loss can be managed with skin grafts, local flaps or tissue expanders. Rotational flaps provide a sensate and hair bearing scrotum but require more extensive dissection and have been generally supplanted by skin grafting. Full thickness skin grafts are reserved for selected cases where small surface areas are required and contraction is especially problematic, but not useful in this case due to 90% scrotal loss. Thigh pouches are acceptable but generally temporizing measures except in the most debilitated patients. Reconstruction is most easily accomplished with the use of split-thickness skin grafts which can cover large areas of skin loss and provide for complete scrotal reconstruction. Advantages of split thickness skingrafts include their high success rate and the fact that, when healed, they mimic the rugate appearance of the normal scrotal skin. Disadvantages include lack of hair and the fact that they may retract. Retraction can be minimized by avoiding expansion of the graft (i.e. 2:1 or 3:1 meshing). Skin grafts should never be placed on an acute injury due to bacterial contamination that will usually result in graft loss. Delayed grafting five to seven days post-injury in the presence of a clean graft bed will result in increased graft take.

72. A seven-year-old boy is a restrained front seat passenger in an MVC in which air bag deployment is noted. In the ER, he has right flank pain. Physical exam reveals mild right sided abdominal and CVA tenderness. No hypotension was noted in the field or in the ER. Hgb is 12.5 and urinalysis shows 25 RBC/hpf. The next step is:

A: observation.
B: serial CBC and urinalysis.
C: abdominal ultrasound.
D: abdominal CT scan with contrast.
E: cystogram.
ANSWER=D.

The kidneys in children, as compared to those in adults are believed to be more susceptible to trauma for numerous reasons including a more pliable thoracic cage, weaker abdominal musculature, less perirenal fat, and lower position in the abdomen. Although there has been past controversy regarding the indications for imaging in children with blunt renal trauma, most studies now suggest that children should be radiographically evaluated in a similar fashion to adults. Thus, they should be imaged when one of the following four criteria are present: 1. A significant deceleration or high-velocity injury such as a high speed MVC, or fall from more than 15 feet, or significant blow to the abdomen, 2. Significant trauma that has resulted in fractures of the surrounding rib cage or spine, 3. Gross hematuria, or 4. Microscopic hematuria (< 50 RBC/hpf) associated with shock (systolic blood pressure less than 90 mm Hg). CT scans are the best form of imaging. In this child, the degree of microscopic hematuria and the absence of shock does not fulfill the criteria for imaging. However, the mechanism of injury where airbag deployment was noted suggests a significant deceleration injury which mandates the need for imaging; thus a CT scan should be performed. The mechanism of injury is probably the most important factor in helping to determine whether imaging is necessary in borderline cases.

73. A 47-year-old woman is undergoing percutaneous test stimulation of a lead for sacral neuromodulation. Plantar flexion and rotation of the foot is noted along with sensation in the buttock. The next step is to:

A: maintain lead and discharge home.
B: place the lead one foramen higher and re-test.
C: place the lead one foramen lower and re-test.
D: advance the lead deeper into the foramen and re-test.
E: withdraw the lead to a more superficial location in the foramen and re-test.
ANSWER=C.

The motor and sensory responses noted are consistent with incorrect placement of the lead into the S2 foramen. The lead should be removed, replaced one foramen lower (S3), and re-tested. Placing more deep or shallow will not result in appropriate stimulation. Correct placement of the lead into the S3 foramen will result in a Bellows reflex, a contraction of the perineal area, and plantar flexion of the ipsilateral great toe.

74. A 65-year-old man has lethargy, malaise, and a markedly diminished urinary stream. After urethral catheterization, he experiences a postobstructive diuresis that is managed by appropriate fluid replacement. Urine output is 1,500 ml daily. Serum creatinine and BUN are 6.8 mg/dl and 95 mg/dl respectively, and unchanged three days later. The next step is:

A: continued observation.
B: retrograde pyelography.
C: dialysis.
D: renal ultrasound.
E: increased fluid replacement.
ANSWER=D.

In patients with urinary obstruction and impaired renal function, postobstructive diuresis is not unusual. Typically, urinary catheter drainage produces improvement in the blood levels of creatinine, BUN, and electrolytes to normal levels. If significant improvement does not occur, consideration must be given to inadequate drainage of the upper urinary tract because the bladder is poorly drained (poorly functioning catheter) or because of supravesical obstruction. The latter should be evaluated using renal ultrasound which is less invasive than retrograde pyelography. Since creatinine and BUN have not improved, continued observation is inappropriate until upper tract obstruction is ruled out. No data to suggest the need for immediate dialysis in this patient is provided. There is no evidence the patient is dehydrated, therefore increased fluid replacement is not indicated.

75. A two-year-old boy with hemihypertrophy should undergo:

A: twice yearly physical exam of abdomen.
B: renal ultrasound every three months.

C: twice yearly urinalysis and urinary metanephrine level.
D: annual abdominal CT scan.
E: abdominal MRI scan every six months.
ANSWER=B.
Children with hemihypertrophy are at risk for the development of Wilms' tumor due to alterations in the WTR1 and WTR2 genes. The best screening method to allow early detection of a renal mass, without untoward exposure to radiation or excessive cost, is ultrasound every three months through early childhood. Twice-yearly urinalysis and urinary metanephrine are not indicated in this patient, because they are not predisposed to pheochromocytomas.

76. Autoinflation of an inflatable penile prosthesis is best prevented by:
A: use of a smaller reservoir.
B: postoperative partial cylinder inflation.
C: intraperitoneal reservoir placement.
D: reservoir placement in subinguinal canal.
E: use of a reservoir with a lockout valve.
ANSWER=E.
Autoinflation occurs when the inflatable penile prosthesis partially inflates with physical activity. It can be minimized by placing the reservoir in the prevesical (retropubic) space performing the back pressure test with reservoirs that do not have a lockout valve or by using a reservoir with a lock-out valve, is now available as an option. The cylinders should also be kept deflated during healing after surgery and when the prosthesis is not being used. Initial experience with this device suggests that it reduces the incidence of this complication.

77. A 45-year-old man undergoes bilateral end to side vasoepididymostomy. Semen analysis six months later demonstrates azoospermia. The next step is:
A: observation.
B: measurement of FSH.
C: clomiphene citrate therapy.
D: TRUS.
E: testicular sperm retrieval.
ANSWER=A.
The delayed appearance of sperm in the ejaculate of men undergoing vasoepididymostomy (VE) is common. The mean delay in one reported series was six months (range, 3 to 15 months). The ultimate mean sperm count and motility were found to be similar to subjects with sperm present in the initial semen analysis in this study. Therefore, observation would be the best approach in this situation. The epididymal fluid would have been examined for sperm at the time of VE and the procedure only performed if sperm were identified. Determination of the FSH would not be useful since FSH should be normal in patients with obstructive azoospermia. Clomiphene citrate willraise FSH, LH, and testosterone but not correct the obstruction. TRUS is indicated for ejaculatory duct, not epididymal obstruction. Testicular sperm retrieval is not indicated this early after surgery.

78. A four-year-old girl voids normally but is continuously wet. A renal ultrasound shows normal appearing kidneys bilaterally. The next step is:
A: MAG-3 renal scan.
B: VCUG.
C: MRI scan
D: cystoscopy and vaginoscopy.
E: retrograde pyelogram.
ANSWER=C.
The clinical scenario of dribbling despite normal voiding creates suspicion of an ectopic ureter. Often the ectopic upper pole moiety of the duplex kidney is very small and not easily identified on ultrasound. In these cases an MRI scan or MR urogram are the best imaging tests to localize the difficult to identify small, dysplastic upper poles and their ureters. MR urogram is not always required since the T2-weighted images of a standard MRI are particularly suited for finding and defining fluid-filled structures like an ectopic ureter. Sagittal imaging may demonstrate the exact termination of the ectopic ureter. DMSA scan is most useful in the identification of small ectopic kidneys but is unlikely to be useful when the renal US is normal. If the moiety is small, a MAG-3 renal scan and IVP will appear normal because the upper pole has no function and the lower pole will not be deviated. VCUG will sometimes show VUR into an ectopic ureter depending on the location of the orifice. A retrograde pyelogram can identify the ectopic orifice but the orifice is often difficult to identify cystoscopically and is not as sensitive as an MRI scan.

79. Urodynamic stress urinary incontinence is defined as urinary leakage that occurs:
A: with a cough-induced detrusor contraction.
B: during a rise in intraabdominal pressure in the absence of a detrusor contraction.
C: with a rise in detrusor pressure.
D: involuntarily per urethra during urodynamic testing.
E: in the absence of increased in intraabdominal pressure and a voluntary detrusor contraction.
ANSWER=B.
Urodynamic stress urinary incontinence is defined as the presence of urinary leakage during a rise in intraabdominal pressure in the absence of a detrusor contraction. The presence of leakage with cough and or sneeze, defines the symptom of SUI. Leakage in the absence of a rise in intraabdominal pressure with a rise in detrusor pressure is the detrusor leak point pressure, most commonly encountered in neurogenic patients. This represents the relationship between bladderstorage and outlet resistance.

80. A 64-year-old man has painless right testicular swelling of three months duration. Urinalysis is normal, and testicular ultrasound reveals an enlarged right testis with multiple hypoechoic lesions. The most likely diagnosis is:
A: lymphoma.
B: chronic lymphocytic leukemia.
C: spermatocytic seminoma.
D: teratocarcinoma.
E: embryonal cell carcinoma.
ANSWER=A.
Lymphoma accounts for about 5% of all testicular tumors. It is the most common of all testis tumors over the age of 50. The median age of occurrence is approximately 60 years. Lymphoma is the most common secondary neoplasm of the testis. Microscopically, all varieties of reticuloendothelial neoplasms, including Hodgkin's disease, have been described in the testis. The vast majority, however, are diffuse; of these, most are histiocytic. Of germ cell tumors in men over 50, seminoma is most common. However, in the presence of multiple testicular lesions in a 64-year-old man, lymphoma is the most likely diagnosis.

81. In a newborn with penoscrotal hypospadias and nonpalpable testes, the most important test is:
A: serum for 17-hydroxyprogesterone.
B: determination of testosterone:dihydrotestosterone ratio.
C: hCG stimulation test.
D: pelvic ultrasound.
E: genitogram.
ANSWER=A.
While this child may be male, consideration of the 46XX disorder of sex development secondary to CAH must be entertained. Laboratory evaluations to assess enzymatic adrenal function is the primary concern. FISH evaluation for the presence of a Y

chromosome and chromosome analysis should be done as soon as possible. Many of the patients with CAH will be deficient in mineralocorticoids in addition to corticosteroids. Without prompt diagnosis and treatment lifethreatening shock may develop due to dehydration and salt loss. All of the other listed options are reasonable tests for the evaluation of disorders of sex development, but will only be performed after CAH is ruled out.

82. A 28-year-old woman has significantly decreased libido six months after starting oral contraceptive pills. The most likely cause of her decreased sexual desire is:
A: reduced serum estradiol.
B: reduced serum progesterone.
C: reduced serum testosterone.
D: decreased sex hormone binding globulin.
E: increased serum prolactin.
ANSWER=C.
Oral contraceptive pills (OCPs) significantly increase the production and release of sex hormone binding globulin (SHBG) by the liver. The increased SHBG subsequently lowers serum free testosterone by irreversible binding. Low levels of circulating free testosterone can cause a significant decrease in sexual desire/libido. While estradiol may decrease with OCPs, the effect is less striking on libido than the effect of a lower serum testosterone. Progesterone levels may actually increase with some OCPs.

83. The best predictor of long-term recurrence-free status in a patient with non-invasive bladder cancer is:
A: tumor size.
B: Rb mutation.
C: tetraploid flow cytometry.
D: negative random biopsies.
E: negative cystoscopy three months after a TURBT.
ANSWER=E.
Rb mutations (Retinoblastoma Protein) are found in approximately 30% of bladder tumors and are correlated with a higher stage disease at time of diagnosis and decreased patient survival. Flow cytometry has not been found to be of more clinical value than conventional cytology in determining tumor recurrence. Low grade tumors are usually diploid, bladder tumors with triploid to tetraploid will be found to have unfavorable pathologic characteristics and a poorer prognosis. Interesting patients with pure tetraploid expression have a more favorable prognosis than those of patients with triploid to tetraploid tumors but worse than diploid tumors. Both tumor size and negative random biopsies have a dramatic impact on progression rate but less on recurrence rate. In patients with a well or moderated differentiated non-invasive bladder cancer, the factor which best predicts the absence of tumor recurrence is a post TURBT negative cystoscopy at three months. If no tumor is present at three months, there is an 80% chance of no further tumor recurrence.

84. Urinary concentration is primarily the result of which characteristic of the kidney:
A: hypertonic medullary interstitial fluid.
B: absence of ADH.
C: hypotonic medullary interstitial fluid.
D: high levels of ADH.
E: hypertonic proximal tubular fluid.
ANSWER=A.
Although 65% of sodium chloride and water are reabsorbed in the proximal tubule, the intraluminal fluid remains iso-osmotic. Urinary concentration takes place as the tubular fluid flows through the medullary collecting ducts. The medullary interstitial hyperosmolarity in the presence of normal plasma concentrations of ADH causes water to diffuse out of medullary collecting ducts into the interstitial fluid and then into the medullary blood vessels. High ADH levels produce a more concentrated urine and low levels produce a more dilute urine.

85. A 60-year-old healthy woman with recurrent UTIs has free air in the bladder and a thickened bladder wall adjacent to a loop of thickened colon see on CT scan. Cystoscopy demonstrates erythema in the bladder wall with no clear fistula. The next step is:
A: antibiotic prophylaxis.
B: high pressure cystogram.
C: CT scan with small bowel follow through.
D: MRI scan.
E: general surgery consult/exploratory laparotomy.
ANSWER=E.
Cross-sectional imaging, especially CT scan, has become the imaging modality of choice to demonstrate a vesicoenteric fistula. CT or MRI scans may localize the fistula track as well as the involved segment of bowel. The triad of findings on CT that are suggestive of colovesical fistula consists of (1) bladder wall thickening adjacent to a loop of thickened colon, (2) air in the bladder (in the absence of previous lower urinary tract manipulation), and (3) presence of colonic diverticula. Cystoscopy has the highest yield in identifying a potential lesion, with some type of abnormality noted on endoscopic examination in more than 90% of cases. However, the findings on cystoscopy are often nonspecific and include localized erythema and papillary or bullous change; a definitive diagnosis by cystoscopy can be made in only 35% to 46% of cases. This patient has clear evidence of a vesicoenteric fistula and further diagnostic studies are not indicated. Should she be a poor surgical risk, long-term antibiotics could be used. Definitive colonic resection of presumed diverticulosis and repair of fistula should occur with exploratory laparotomy. General surgery may wish to proceed with colonoscopy/barium enema to evaluate the extent of the affected segment or rule-out malignancy.

86. A 26-year-old man undergoes a left radical orchiectomy for seminoma. CT scan reveals two 3 cm interaortocaval nodes. Two weeks after orchiectomy, the AFP is unchanged at 25lU/ml and beta hCG is 8mlU/ml. The next step is:
A: infradiaphragmatic XRT.
B: cisplatin-based chemotherapy.
C: infradiaphragmatic plus supradiaphragmatic XRT.
D: RPLND.
E: RPLND plus cisplatin-based chemotherapy.
ANSWER=B.
Although the histological diagnosis is seminoma, the elevated alpha-fetoprotein is indicative of a non-seminomatous testis tumor, and the patient should be managed as such. The orchiectomy specimen should be re-evaluated in detail to look for an additional germ cell elements. Given the findings on the CT scan, this patient has a clinical Stage IIB tumor. Based on the data available in the literature, it appears these patients are best served with initial chemotherapy rather than RPLND following the inguinal orchiectomy. The most widely utilized regimen today is three cycles of bleomycin, etoposide (VP-16), and cisplatin. If residual nodal tissue is evident after the multidrug chemotherapy, surgical excision is recommended. With the evolution of effective multidrug regimens, radiation therapy is no longer utilized in the management of Stage IIB nonseminomatous testis tumors.

87. A four-year-old uncircumcised boy has a two-week history of foreskin swelling with urination. The retained urine under the foreskin drains slowly following completion of voiding. There is no dysuria or hematuria. Physical exam reveals mild erythema of the distal foreskin and a phimotic ring. The meatus cannot be visualized. The next step is:
A: observation.

B: sitz baths.
C: topical steroid ointment.
D: dorsal slit.
E: circumcision.
ANSWER=C.
The patient has pathologic phimosis that does not allow adequate urinary drainage. Observation is only appropriate in the setting of physiologic phimosis in which the foreskin is not retractable due to normal physiologic adhesions, as opposed to pathologic phimosis, which is development of a dense fibrotic ring from chronic inflammation. Treatment of pathologic phimosis with a topical steroid ointment (0.05% betamethasone) is effective in up to 90% of cases in relieving the phimosis and allowing adequate retraction of the foreskin. If the patient had more acute problems such as severe balanitis or more obstructive voiding symptoms then surgical intervention with a dorsal slit or circumcision may be appropriate. Sitz baths alone are unlikely to rectify the problem.

88. A 65-year-old man has been using 20 mg of tadalafil (Cialis™) as needed for treatment of erectile dysfunction. His primary care provider starts him on doxazosin for hypertension. His treatment of erectile dysfunction should include:
A: continue tadalafil 20 mg as needed.
B: decrease tadalafil to 10 mg as needed.
C: start tadalafil for once daily use at 5 mg/day.
D: stop tadalafil.
E: switch to intracorporal alprostadil.
ANSWER=B.
Concomitant use of alpha-blockers and PDE-5 inhibitors can cause hypotension. When tadalafil is coadministered with an alpha-blocker, patients should be stable on alpha-blocker therapy prior to initiating treatment with tadalafil, and tadalafil should be initiated at the lowest recommended dose. Conversely, when starting an alpha-blocker the lowest dose of either agent should be used and they should not be taken at the same time. There is no need to stop tadalafil in this patient or switch to intracorporal injections if he has been successful on oral therapy. Of all the choices, decreasing to the lowest effective dose of tadalafil (10 mg for use as needed, or 2.5 mg/day for once daily use) would be recommended for this man.

89. A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Her replacement therapy consists of cortisone and fluorocortisone. Three years later, she complains of visual disturbances and has skin hyperpigmentation. The most likely explanation is:
A: Addison's disease.
B: pituitary adenoma.
C: excessive cortisone replacement.
D: excessive ACTH production.
E: ectopic melanocyte-stimulating hormone secretion.
ANSWER=B.
Approximately 10-20% of patients who have had a bilateral adrenalectomy for Cushing's Syndrome later develop pituitary tumors that are almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation (due to melanocyte stimulating hormone release by corticotropic releasing hormone), headaches, and visual disturbances are due to the expanding adenoma that is diagnosed by MRI or CT scans of the sella turcica. Pituitary basophilic adenoma that was initially postulated by Cushing as causing the syndrome named for him has, in fact, rarely been a factor. Addison's disease describes primary adrenal insufficiency not as a result of bilateral adrenalectomy. Excessive cortisone replacement would result in aCushingoid appearance (purple striae, buffalo hump, central obesity). Excessive ACTH production is not the end result of bilateral adrenalectomy. Although, increased skin pigmentation could be a result of ectopic melanocyte stimulating hormone secretion the other symptoms would not.

90. Prolapse of a vesicostomy is best avoided by:
A: making the stoma no bigger than 12 Fr.
B: resecting excess bladder wall tissue.
C: placing the stoma at the bladder dome.
D: circumferential suturing of bladder to rectus fascia.
E: placing a stoma midway between symphysis pubis and umbilicus.
ANSWER=C.
When the bladder dome is brought out for the vesicostomy, it effectively immobilizes the posterior wall of the bladder, preventing its prolapse out the vesicostomy stoma. The bladder dome can be reliably identified by seeing and dividing the urachal remnant. Resecting bladder tissue is contraindicated to facilitate future undiversion. The other possibilities will not prevent prolapse if the vesicostomy is performed on the anterior wall of the bladder.

91. Hypercoagulability in patients with ESRD secondary to nephrotic syndrome is due to:
A: hypohomocystinenemia.
B: urinary loss of antithrombin III.
C: retention of protein S.
D: retention of protein C.
E: decreased antiphospholipid antibodies.
ANSWER=B.
A hypercoagulable state can occur in the nephrotic syndrome with urinary loss of the natural anticoagulants: antithrombin III, protein C, and protein S. Hyperhomocysteinemia is common in ESRD, and has been associated with thrombophilia. Antiphospholipid antibodies are found in 30% to 50% of patients with systemic lupus erythematosus, a cause of ESRD. Loss of antithrombin III and increased antiphospholipid antibodies increase the risk of thrombosis of renal allografts, dialysis access devices, and post-operative thromboembolic events. Thus, anticoagulation should be considered in these patients.

92. The most frequent complications associated with the use of mitomycin C for intravesical therapy are:
A: chemical cystitis and rash.
B: myelosuppression and rash.
C: flu-like symptoms and myelosuppression.
D: contracted bladder and chemical cystitis.
E: myelosuppression and chemical cystitis.
ANSWER=A.
Rash occurs in 9% of patients receiving mitomycin C instillations, and may represent a contact dermatitis. Chemical cystitis has been reported in 6-41% of patients managed with this agent. The molecular weight of mitomycin C is so high that little is absorbed and myelosuppression is rare. A contracted bladder is also rare after mitomycin C treatment. Flu-like symptoms, which are commonly seen after BCG and interferon therapy, are uncommon after intravesical chemotherapy.

93. A one-year-old boy with a familial bleeding disorder receives I.V. DDAVP prior to a hypospadias repair. Appropriate fluid management would include:
A: 1/4 NS intraoperatively; encourage p.o. fluids postoperatively.
B: 1/4 NS intraoperatively; continue I.V. fluids for four hours postoperatively.
C: 1/4 NS intraoperatively: drink to thirst postoperatively.
D: NS intraoperatively: encourage p.o. fluids postoperatively.
E: NS intraoperatively: drink to thirst postoperatively.
ANSWER=E.
DDAVP causes retention of free water. Intravenous fluids should be iso-osmotic, and oral fluids should not be pushed, but taken according to thirst. Dangerous hyponatremia can otherwise be

induced by the administration of hypoosmotic fluids during surgery, or by overencouraging oral fluids postoperatively.

94. A 66-year-old man had a radical prostatectomy six years ago for localized prostate cancer. He has had no evidence of recurrence and an undetectable PSA. He now has loss of libido, declining muscle mass, lethargy, and erectile dysfunction. His serum testosterone is 160 ng/dl, and his LH and prolactin levels are normal. The next step is:

A: explain that testosterone is contraindicated.
B: delay testosterone treatment until he is disease free for ten years.
C: start testosterone after a thorough discussion.
D: start yohimbine.
E: start PDE5 inhibitor.
ANSWER=C.

Men successfully treated for prostate cancer and suffering from symptomatic hypogonadism may become candidates for androgen therapy, if there is no evidence of residual cancer after a prudent interval. The risks and benefits must be clearly understood by the patient. Close follow-upis required. Phosphodiesterase inhibitors may be used for first-line therapy of erectile dysfunction, but do not adequately address systemic manifestations of hypogonadism. In hypogonadal men, combined treatment has been reported. Yohimbine is not recommended for the treatment of erectile dysfunction.

95. A 79-year-old man with congestive heart failure has gross hematuria. CT urogram reveals a 6 mm distal right ureteral filling defect. Right ureteral washing for cytology are positive for high grade carcinoma. Serum creatinine of 1.9 mg/dl is stable. The next step is:

A: retrograde pyelogram and ureteral washing in four months.
B: ureteral stent placement and intravesical BCG.
C: ureteroscopic biopsy and laser ablation.
D: distal ureterectomy and reimplantation.
E: nephroureterectomy.
ANSWER=C.

This patient is elderly, has compromised medical and renal status and probably has a distal ureteral urothelial carcinoma. While optimal therapy in a younger, healthier patient would be distal ureterectomy and reimplantation, this patient would be well-served with endoscopic management. In the setting of subcentimeter lesions such as this one initial ureteroscopic ablation with followup ureteroscopy and surveillance is likely to be associated with equivalent control rates to distal ureterectomy and would avoid major abdominal surgery in this patient with heart failure.

96. A 25 cm segment of ileum is isolated for bladder augmentation and reconfigured into a "U" shape. A sagittal incision of the bladder is made. The most dependent portion of the intestinal patch will not reach the apex of the incision by the bladder neck even after the mesentery is aggressively mobilized. The next step is:

A: reconfigure the intestine into an "S" shape.
B: incise both sides of the peritoneum overlying the mesentery.
C: ligate branching vessels of the vascular arcade.
D: partially close the anterior wall of the bladder.
E: isolate an additional intestinal segment for composite augmentation.
ANSWER=B.

When an intestinal patch will not reach the deep pelvis in a tension free manner, the first step should always be aggressive mobilization of the root of the mesentery. When this fails to achieve the desired length, transverse incisions of the peritoneum should be performed on both sides of the mesentery in a step wise fashion. This can result in significant lengthening of the mesentery. Ligation of vessels should only be done as a last resort to avoid vascular compromise to the bowel segment. Psoas hitch has also been described, but will not help move the apex of thesagittal incision by the bladder neck which is fixed. Reconfiguration will not gain more length and closure of the anterior bladder wall will risk the development of an hourglass deformity.

97. A 67-year-old man develops erythema and mild tenderness in the scrotum six weeks following placement of a three-piece inflatable penile prosthesis. He has no tenderness or erythema in the penile shaft or suprapubic area. The best treatment is:

A: oral antibiotic therapy for six weeks.
B: I.V. antibiotic therapy for six weeks.
C: removal and replacement of the scrotal pump.
D: removal of the entire device and replacement in six months.
E: removal of the device with washout and immediate replacement.
ANSWER=E.

This patient clearly demonstrates an early prosthetic infection manifested around the scrotal pump. Treatment of a prosthetic infection with antibiotics usually results in clinical improvement but is almost never the definitive treatment and the infection will recur. This is due to microorganisms within a biofilm that is adherent to the device and the inability to sterilize the device or the biofilm once these organisms are present. When a prosthetic infection is present, all components of the prosthesis should be removed. If they are removed a new device should be replaced as soon as is feasible (within six to eight weeks) to decrease the amount of fibrosis and significant penile shortening which will occur. Mulcahy introduced the concept of immediate prosthesis salvage for infection which has been able to salvage as many as 85% of these patients and prevent penile shortening. His protocol involves removal of all prosthetic components followed by irrigation with seven antibacterial solutions. Others have reported on using different numbers and types of solutions. Mechanical irrigation and removal of the biofilm appears to be the key principle of this technique. A new device is implanted immediately after irrigation, and the patient is prescribed antibiotics. When salvage procedures are successful, they maintain penile size and correct the problem with only one operation.

98. When performing urinary diversion, the gastrointestinal segment associated with the highest potassium loss is

A: stomach.
B: jejunum.
C: proximal ileum.
D: distal ileum.
E: colon.
ANSWER=E.

It is important to know the electrolyte content of the fluid from the various bowel segments inorder to replace abnormal fluid losses from these segments. Serum electrolyte complications and the type of electrolyte abnormalities that occur are different, depending on the segment of bowel used. If stomach is employed, a hypochloremic metabolic alkalosis may occur. If jejunum is the segment used, hyponatremia, hyperkalemia, and metabolic acidosis occur. If the ileum or colon is used, a hyperchloremic metabolic acidosis ensues. Hypokalemia and total-body depletion of potassium may occur in patients with urinary intestinal diversion. This is more common in patients with ureterosigmoidostomies than it is in patients who have other types of urinary intestinal diversion. The use of ureterosigmoidostomies has decreased significantly. It has been shown that ileal segments exposed to high concentrations of potassium in the urine reabsorb some of the potassium, whereas colon is less likely to do so. Thus, those with ileum interposed in the urinary tract likely blunt the potassium loss by the kidney, whereas those with colon do not, thus explaining why patients with ureterosigmoidostomies and ureterocolonic diversions are more likely to have total-body potassium depletion.

99. A seven-year-old boy has recurring abdominal pain one to two times per month. Episodes consist of left flank discomfort, nausea, and vomiting. On ultrasound, there is mild left hydronephrosis. A MAG-3 Lasix renal scan shows 50% differential function and a T1/2 of eight minutes bilaterally. Two urinalyses demonstrate 2-5 RBCs/hpf. The test most likely to yield the diagnosis is:

A: non-contrast CT scan.
B: VCUG
C: MR urogram.
D: ultrasound of kidneys during pain.
E: left antegrade renal perfusion study (Whitaker).
ANSWER=D.

The history suggests intermittent UPJ obstruction and the associated "Dietl's crisis." Dietl's crisis is intermittent abdominal pain associated with nausea and vomiting following an episode of high fluid intake. Although a renal scan with Lasix is used in an attempt to prompt the crisis, it may on occasion be falsely negative. In these patients, it is best to repeat a renal ultrasound at the time of pain and compare this to a baseline renal ultrasound taken when the patient was asymptomatic. If increased hydronephrosis at the time of symptoms is present, it is diagnostic and the pyeloplasty will be curative. Placement of a double J stent in this patient population is not usually helpful since the discomfort of the stent will usually preclude its diagnostic usefulness. A Whitaker test is invasive and usually reserved to evaluate for the presence of obstruction in a hydronephrotic kidney with poor renal function, i.e., kidney < 25% differential function, or in a patient where the serum creatinine two times elevated for age or creatinine of greater than or equal to 2 mg/dl in the adult, in these later circumstances, renal scans will usually be falsely positive for obstruction due to poor renal function. A VCUG will not be helpful in this patient. Even if VUR is present, it is notthe source of the patient symptoms. MR urogram and a noncontrast CT scan are not effective or useful on asymptomatic patients.

100. A 67-year-old woman is undergoing surgery for repair of a post-hysterectomy vesicovaginal fistula located above the trigone with communication to the vaginal vault. A vaginal repair is selected. The best flap to interpose is:

A: peritoneal.
B: omental.
C: Martius.
D: labial myocutaneous.
ANSWER=A.

During a vaginal approach to a high riding post-hysterectomy fistula, a peritoneal flap is preferred. It is relatively easy to raise a well vascularized flap of peritoneum in this location. A Martius flap would be very difficult to mobilize to that location in the vagina without compromising the blood supply. An omental flap is occasionally useful from a vaginal approach if it had previously been secured in the pelvis from prior surgeries. A gracilis flap can be utilized but is typically not necessary for vesicovaginal fistulae. A labial myocutaneous flap can be utilized particularly if there is significant foreshortening of the vagina or loss of vaginal mucosa.

101. The drug that can be reabsorbed by an ileal neobladder and result in toxic serum levels is:

A: phenytoin.
B: trimethoprim-sulfamethoxazole.
C: sildenafil.
D: warfarin.
E: furosemide.
ANSWER=A.

Drugs which are excreted by the kidneys unchanged may be resorbed by the intestinal mucosa in urinary diversions, leading to toxic serum levels. Phenytoin is the only drug listed excreted into the urine unchanged and associated with toxicity in the setting of a urinary diversion. Other commonly used drugs that can be reabsorbed include methotrexate, lithium carbonate, and theophylline.

102. Gadolinium based contrast, compared to iodinated contrast, in patients on dialysis have a greater risk of:

A: anaphylactic reaction.
B: nephrotoxicity.
C: itching.
D: systemic fibrosis.
E: congestive heart failure.
ANSWER=D.

Nephrogenic systemic fibrosis (NSF) is a disorder characterized by tissue fibrosis that primarily occurs in dialysis patients following the administration of gadolinium contrast for radiologic studies. The other distractors listed: anaphylactic reaction, nephrotoxicity (patient is already on dialysis), pruritus and congestive heart failure do not occur more frequently following gadolinium than iodinated contrast agent. Studies suggest a strong association between the use of gadolinium based MRI contrast agents and the subsequent development of NSF in patients with renal disease. Gadolinium based MRI contrast agents are chemical chelates with the gadolinium ion bound by a linear or cyclic molecule. Since free gadolinium ions are toxic and poorly excreted, safety completely rests on the ability of the chelate molecule to prevent gadolinium release. The kidneys solely excrete these agents and their half-life prolongs from one to two hours to over 30 hours with severe renal dysfunction. Renal failure allows a situation where gadolinium based MRI contrast agents reside within patients for long periods of time potentially allowing for toxic levels of free gadolinium ions to build-up, deposit in tissues, and subsequently lead to fibrosis. Therefore, patients in ESRD requiring dialysis are at a greater risk of NSF.

103. A six-month-old infant with severe pulmonary hypertension is on I.V. sildenafil at the dose of 1.2 mg/kg every six hours. After two days, he is successfully weaned off inhaled nitric oxide. He develops a sustained erection that has lasted 12 hours. The next step is:

A: observation.
B: discontinue I.V. sildenafil.
C: lower I.V. sildenafil dose.
D: switch to oral sildenafil.
E: re-initiate inhaled nitric oxide.
ANSWER=C.

Sildenafil has been very effective in treating pulmonary hypertension in infants and adults and was approved by the FDA in 2005. Many multi-institutional studies have demonstrated its safety and efficacy in this population. Doses for treatment of pulmonary hypertension are much higher than doses used to treat erectile dysfunction (po -100 mg TID in children and adults, IV 1.2 mg/kg I.V.). This has led to a higher incidence of adverse events including dizziness, headache, flushing, rhinitis and prolonged erection. There have been several reports of prolonged erection in children using high I.V. doses. These patients have responded to simply lowering the dose of sildenafil. This patient has shown an excellent response to treatment with I.V. sildenafil (since he has been successfully weaned off inspired nitric oxide) of his life-threatening pulmonary hypertension and it should be continued. Observation is not appropriate with a prolonged erectionof this type. No data is available on either switching to oral administration or to a different PDE5 inhibitor.

104. A 67-year-old man with a clinical stage T2bN0M0 Gleason 6 prostate cancer with a PSA of 7.8 ng/ml is treated with 70 Gy external beam XRT. His PSA nadirs to 0.8 ng/ml six months

after therapy. Six months later, he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/ml. The most likely explanation for the elevated PSA level is:
A: prostatic infarct.
B: persistent prostate cancer.
C: PSA bounce effect.
D: radiation-induced prostatitis.
E: insufficient period of observation after therapy.
ANSWER=B.
A marked increase in serum PSA after a nadir within six months of external beam XRT is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks. A "bounce" can be defined as a rise greater than 0.2 ng/ml followed by a durable decline and is especially common after brachytherapy, where it is reported to occur in 24% to 35% of men. These can start any time from 9 to 30 months after brachytherapy with the majority of patients having a cumulative PSA rise of not more than 2 to 3 ng/ml. Prostatic infarct is rare following radiation therapy for prostate cancer, and would likely be associated with a significantly elevated PSA.

105. A one-month-old girl with severe congenital heart disease had an episode of urosepsis. She has a solitary kidney with upper pole hydroureteronephrosis. Her renal scan shows 33% function in the upper pole with UVJ obstruction and a massively dilated upper pole ureter. The lower pole system is normal. The VCUG shows no reflux. The next step is antibiotic prophylaxis and:
A: percutaneous nephrostomy.
B: tapered upper pole reimplant.
C: upper pole distal cutaneous ureterostomy.
D: upper pole to lower pole distal ureteroureterostomy.
E: upper pole heminephroureterectomy.
ANSWER=C.
This infant has an obstructed upper pole ureter in a solitary kidney and suffered urosepsis. Surgical intervention is indicated. Her age, severe pulmonary and cardiac disease makes all upper abdominal surgery unattractive. Since she has a significant portion of her renal function in the upper pole a heminephrectomy is incorrect. Anastomosis of the massively dilated upper polesystem to the normal lower pole system is technically difficult either at the level of the renal pelvis or the ureter. Percutaneous nephrostomy tubes can be a short term-answer in a critically ill child but they have complications including chronic infection, calculus formation, and displacement. Tapered reimplantation in a child of this age is technically challenging because of the small bladder. The best treatment is a cutaneous ureterostomy that will allow adequate drainage and prevent infection until definitive surgery is safe. It will also allow the dilated upper pole system to decompress and reconfigure the ureter.

106. A 35-year-old woman with advanced multiple sclerosis and very impaired manual dexterity has severe urinary urgency and incontinence that does not respond to high dose antimuscarinic therapy. Urodynamics confirms neurogenic detrusor overactivity with a detrusor LPP of 70 cm H2O. The best long-term treatment option is:
A: urethral catheter placement.
B: onabotulinum toxin injection of the bladder.
C: sacral neuromodulation.
D: augmentation cystoplasty.
E: ileal conduit.
ANSWER=E.
Off-label onabotulinum toxin injection and augmentation cystoplasty place the patient at high risk for needing to perform CIC, which is not feasible in a patient with poor manual dexterity. Sacral neuromodulation is not FDA-approved for patients with neurogenic bladder nor can patients with an implanted neuromodulator undergo MRI, a study that has a high likelihood of being necessary in a patient with MS. The best choice for this patient is an ileal conduit. When possible, chronic urethral catheter placement should be avoided as it can result in significant urethral loss, UTIs, stones, and an increased risk of bladder malignancy. While not the recommended treatment, if long-term catheter drainage is chosen, a suprapubic tube is preferable to a urethral catheter, with careful long-term follow-up required.

107. A 50-year-old woman has acute left flank pain. Her hemoglobin is 7 gm/dl, and creatinine 2.1 mg/dl. CT scan shows a 15 cm lower-pole left renal mass and a large perinephric hematoma. There are low-density areas (Hounsfield units of-30) within the mass. After transfusion, the next step is:
A: observation.
B: selective angiographic embolization.
C: radical nephrectomy.
D: partial nephrectomy.
E: radio frequency ablation.
ANSWER=B.
The negative Hounsfield units on the CT scan indicate the presence of fat in the tumor, showing that this is a renal angiomyolipoma which has bled acutely. Angiographic embolization is often successful in these tumors, can be performed quickly without the need for general anesthetic, and can usually preserve the normal portion of the kidney. If a patient has tuberous sclerosis, bilateral disease, preexisting renal insufficiency, or other medical or urologic disease that could affect renal function in the future, selective embolization should be considered as the treatment. An alternative would be lower pole partial nephrectomy, once the patient is stabilized, but not in the acute setting as often times radical nephrectomy would be required. This would put this patient at significantly increased risk of dialysis. Laparoscopic nephrectomy would be very difficult in the face of recent acute hemorrhage. Radio frequency ablation should not be used for such a large tumor.

108. A three-year-old boy with sickle cell disease has painful priapism for two hours. Initial management should include intravenous hydration, pain management, 02 supplementation and:
A: oral pseudoephedrine.
B: exchange transfusion.
C: aspiration of the corporal bodies with instillation of dilute phenylephrine.
D: Winter's shunt.
E: cavernosaphenous vein shunt.
ANSWER=A.
Priapism occurs in males with all forms of sickle cell anemia but most commonly the sickle cell disease. When presenting in childhood it may be associated with impotence later in life. A precipitating event should be searched for, such as drug usage, medications used for impotence (not in the pediatric population), infection, trauma, or psychoactive medications. Hydration and opioid analgesic are the mainstays of management of all forms of sickle cell pain. Oxygen is indicated when the patient is hypoxic. Erection results from relaxation of the smooth muscles of arterioles and trabeculae in the corpora, and detumescence is the result of smooth muscle contraction, opening emissary veins and increasing venous drainage. Therefore, detumescence should be facilitated by alpha-adrenergic agonists such as pseudoephedrine (a pure alphaadrenergic agent). These agents induce contraction of the smooth muscle of the trabecular arteries of the cavernosa, forcing blood out of the cavernosa and promoting detumescence. Exchange transfusions are used after conservative methods mentioned above fail. Aspiration/injection or invasive shunts are used only if detumescence is not achieved by pharmacological methods.

109. A 59-year-old man with Parkinson's disease complains of decreased force of stream, urinaryfrequency, urgency, and recurrent UTI. PVR is 200 cc. The next step is:
A: uroflowmetry.
B: pressure flow urodynamics.
C: chronic suppressive antibiotics.
D: CIC.
E: TURP.
ANSWER=B.
Voiding dysfunction in men with Parkinson's disease can be a result of a multitude of factors, including outlet obstruction related to the prostate, detrusor-striated sphincter pseudodyssynergia, and rarely true dyssynergia. While detrusor overactivity is the most common urodynamic finding in this population, poor detrusor contractility or areflexia may also be seen. Although chronic suppressive antibiotics, tamsulosin, and CIC are not unreasonable options, urodynamics studies should be performed prior to proceeding with any therapy, no matter how simple, to ensure that the proper course is being taken.

110. A 60-year-old man with erectile dysfunction has an impalpable right testicle. Ultrasound reveals a 2 x 2 cm homogeneous ovoid mass at the right internal ring. The next step is:
A: observation.
B: serial ultrasounds.
C: percutaneous biopsy.
D: orchidopexy.
E: orchiectomy.
ANSWER=A.
The peak age of onset of testicular cancer is between 25 and 35 and cryptorchidism is the only know risk factor for testicular cancer. However the risk of developing a testis tumor in an undescended testis drops dramatically after age 30. It has been calculated that the risk of dying from testis cancer after age 32 is outweighed by the risk of surgical mortality, though others have suggested a cutoff of 50. At age 60, this patient should be reassured and does not require serial ultrasounds.

111. A three-year-old boy who underwent a surgical correction for a high imperforate anus has inability to toilet train. VCUG reveals a large trabeculated bladder, grade 3 left VUR and incomplete bladder emptying. Ultrasound of the abdomen shows two normal kidneys. The next step is:
A: spinal ultrasound.
B: spinal MRI scan.
C: alpha-blocker.
D: CIC.
E: vesicostomy.
ANSWER=B.
Spinal cord abnormalities, including tethered cord or thickened or fatty filum terminale and lipoma have been noted in 20-50% of patients with imperforate anus. The severity of the lesion is proportional to the severity of the rectal lesion. In this case, the patient has a high-imperforate anus. VCUG reveals trabeculation, VUR into one kidney, and incomplete bladder emptying - a collection of findings for possible neurogenic bladder dysfunction. The best test is an MRI scan to rule-out spinal cord lesions since the kidneys are presently normal and the bladder has some subtle findings. Due to ossification of the spine a spinal ultrasound cannot rule-out a tethered spinal cord after three months of life. Vesicostomy, CIC, and antimuscarinic and alpha-blocker medications are premature at this point without formal diagnosis of neurogenic bladder and urodynamic study.

112. A 53-year-old woman reports leakage with sneezing and exercise. On physical exam, after voiding, she had no significant prolapse or leakage with coughing and strain. A voiding diary reveals three leaks per day over three days, and pad test reveals 40 gram weight gain each day of testing. Pelvic floor muscle training does not help the leakage. The next step is:
A: full bladder supine stress test.
B: VCUG.
C: antimuscarinic therapy.
D: periurethral injection.
E: midurethral sling.
ANSWER=A.
This patient has symptomatic stress urinary incontinence (SUI), though none is noted on exam. She should not be treated invasively for SUI without documentation on exam. A positive pad test could be the result of urgency leakage, even though she does not report it, as could leaks reported on a voiding diary. She should return for a full bladder stress test done supine and repeated standing if necessary. If that remains negative, urodynamics could be offered to try to better delineate her leakage. VCUG will not add to the diagnostic evaluation in this case, as leakage noted during that test is still not diagnostic of SUI. Antimuscarinics should not be offered in the presence of primarily SUI complaints.

113. A 62-year-old man who seven years earlier received XRT for prostate cancer undergoes TURBT for a pT2 bladder cancer. Metastatic work-up is negative. He desires orthotopic neobladder diversion. At the time of cystectomy, the bowel appears healthy and urethral frozen section is negative. The following diversion should be performed: A: orthotopic neobladder using right colon.
B: orthotopic neobladder using distal ileum.
C: continent cutaneous diversion.
D: ileal loop conduit.
E: transverse colon conduit.
ANSWER=B.
Previously, prior pelvic radiation therapy was an absolute contraindication to orthotopic neobladder. However, recent reports have demonstrated that this can be a safe and effective form of diversion in properly selected patients. Astute intraoperative tissue assessment and determination of the condition of the urethra, ureters, and bowel must be done to limit complications and to provide the best possible clinical outcomes. In this case, it would be safe to proceed with orthotopic neobladder. Distal ileum is preferred to right colon in this setting. Right colon is less mobile and more difficult to detubularize than ileum. Preoperatively, the patient needs to be counseled that he is at higher risk for urinary incontinence.

114. A 45-year-old woman undergoes evaluation for recurrent calcium phosphate stones. Serum calciums range from 9.6-10.0 mg/dl ; PTH 62 pg/dl; urine calcium 281 mg/day (normal < 200 mg/day); and urinary citrate 460 mg/day (normal > 320 mg/day). To further elucidate her metabolic diagnosis, she should be placed on a two week course of:
A: thiazide.
B: mercaptoproprinoglycine.
C: sodium cellulose phosphate.
D: orthophosphate.
E: potassium citrate.
ANSWER=A.
This patient has a picture equivocal for primary hyperparathyroidism with hypercalciuria, serum calcium at the upper limits of normal and a high, but normal serum PTH value. A "thiazide challenge" would help to differentiate renal hypercalciuria from primary hyperparathyroidism. After treating her with a thiazide diuretic for two weeks, her serum calcium and PTH should remain within normal limits and her urinary calcium should return to normal if she has renal hypercalciuria. If, however, she has true hyperparathyroidism, she would become overtly hypercalcemic and

her serum PTH would become elevated with no significant change in the urinary calcium excretion. The other agents will not help elucidate her underlying metabolic abnormalities.

115. After traumatic renal injury, the predictors of persistent bleeding are depth of parenchymal injury, presence of arterial blush, and:
A: urinary extravasation.
B: devitalized fragment.
C: thickness of hematoma.
D: location of laceration.
E: mechanism of injury.
ANSWER=C.
After renal trauma, the likelihood of renal exploration, renorraphy, and nephrectomy is associated with the grade of injury. For example, Grade 4 injuries have a 64 fold higher likelihood of needing nephrectomy than a Grade 1 injury. New literature shows that for grade 3 and 4 injuries, medial hematoma, hematoma > 3.5 cm in thickness and the presence of a vascular contrast blush are associated with increased risk of bleeding and need for intervention. The presence of such findings should alert the urologist to the potential need for angiography and selective embolization of segmental vascular injuries. While urinary extravasation and devitalized fragments increase the risk of urinoma formation, they are not associated with higher rates of bleeding. Neither location of laceration or mechanism of injury predict complications independent of grade.

116. A 73-year-old woman with a serum creatinine of 1.9 mg/dl undergoes right partial nephrectomy for a 4.5 cm hilar renal mass. Frozen section of the resected mass reveals chromophobe RCC with tumor less than 0.1 mm from the margin of resection in the area of renal sinus. The next step is:
A: no further therapy.
B: cryotherapy of resection bed.
C: radiofrequency ablation (RFA) of resection bed.
D: wide resection of renal sinus tissue.
E: completion radical nephrectomy.
ANSWER=A.
The patient exhibits an absolute indication of nephron sparing surgery with a serum creatinine of 1.9 mg/dl which translates into a estimated GFR of 26 ml/min. This patient is in need of retaining as much functional renal parenchyma as possible. This coupled with the fact that she has exhibited an indolent chromophobe subtype of renal cancer is a strong indication to not perform further cancer eradicating procedures. In addition, even in the presence of a positive focal margin there is a very low risk of renal cancer relapse as demonstrated by multiple retrospective data analysis of this scenario. Energy-based therapies in the renal hilar bed would be associated with a high rate of renal unit loss.

117. A healthy, ten-year-old girl has several urinalyses that show 2+ proteinuria. The next step is:
A: ASO titer and complement levels.
B: serum BUN and creatinine levels.
C: 24-hour urine for protein and creatinine.
D: spot urine for protein and creatinine.
E: first morning urine for protein and creatinine.
ANSWER=E.
All children with > 1+ proteinuria on multiple occasions should be evaluated, starting with a urinalysis and first morning spot protein and creatinine ratio. The child must void before retiring and remain supine until the first morning urine sample is obtained. If the ratio is < 0.2, a diagnosis of orthostatic proteinuria is made and no further studies are needed. If other abnormalities are noted on the urinalysis and/or the first morning protein and creatinine ratio is > 0.2, a complete history and physical, including blood pressure, is suggested. Laboratory evaluations, including serum albumin, creatinine, cholesterol, electrolytes, and a 24-hour urine for protein and creatinine and creatinine clearance are obtained. A renal sonogram should be performed. Complement levels (C3, C4) antinuclear antigen (ANA), and serology for hepatitis B and C are indicated. HIV testing should be considered.

118. In a man with azoospermia and elevated FSH, the best predictor of sperm retrieval from the testicle is:
A: serum FSH level.
B: testosterone level.
C: Y chromosome deletion subtype.
D: seminal volume.
E: presence of the vas deferens.
ANSWER=C.
In men with azoospermia, 7% will be associated with Y chromosome microdeletions. Classically, these patients will be found to have azoospermia or severe oligospermia with an elevation in FSH. The microdeletions occur in the long arm of the Y chromosome and are designated as AZFa (proximal), AZFb middle, and AZFc distal. The most common deletion is AZFc. About 75% of men with AZFc deletions have sperm on testicular biopsy. Sperm retrieval from men with complete AZFa or AZFb deletions have not been successful. The success of testicular sperm retrieval has not been correlated with FSH or testosterone level. Seminal volume does not reflect spermatogenic potential and has no relationship to the success of sperm retrieval. The absence of the vas deferens may be associated with obstructive azoospermia but these patients should have a normal FSH whereas this patient has an elevated FSH indicating non-obstructive azoospermia.

119. A 76-year-old man has back pain. Seven years ago, he had a bilateral orchiectomy for T3NXM0 prostate cancer. MRI scan of the spine demonstrates a nonpathologic vertebral compression fracture. PSA is undetectable. The next step is:
A: observation.
B: bone scan.
C: DEXA scan (bone densitometry).
D: antiandrogen therapy.
E: local radiotherapy.
ANSWER=C.
This man, by virtue of his age and androgen deprivation therapy, is at increased risk for osteoporosis. The consequence of osteoporosis is an increase in bone fragility and a susceptibility to fracture. Androgen deprivation therapy (ADT) increases the risk of osteoporosis and is related to the duration of therapy. Compared to age-matched controls, men on ADT have 6.5% to 17.3% higher bone loss. Furthermore, the risk of non-pathologic fracture with ADT is 4% at five years and 20% at ten years. DEXA scan is the gold standard for diagnosis of osteoporosis, and is reported as compared to young adults (T-score) and age-matched (Z-score) controls. The treatment initially includes increasing physical activity on weight bearing joints and the addition of both Vitamin D and calcium. Since this patient has no clinical evidence of disease progression, there is no indication for additional treatment. MRI scan reveals only a nonpathologic fracture and PSA is undetectable; this combination obviates the need for a bone scan.

120. A 38-week-gestation newborn with a PUV has a serum creatinine of 1.1 mg/dl on day two of life. This child's serum creatinine value:
A: will not change with a rapid rise in GFR.
B: is a predictor of future poor renal function.
C: will decrease with completion of nephrogenesis.
D: is not reflective of the degree of renal function impairment.
E: will result in increased active sodium absorption from the descending limb of the loop of Henle

ANSWER=D.
The creatinine in a newborn is reflective of maternal renal function and is not necessarily representative of the degree of renal impairment. In usual circumstances, serum creatinine will reflect the child's renal function by day 7-10. Long term renal function in children with PUV is best predicted by the nadir creatinine at one year of age. If the nadir creatinine is less than 0.8 mg/dl at one year of life, this is a good prognostic sign for retained renal function that will be able to be maintained into adulthood. By 34 weeks gestational age, nephrogenesis is complete and will not affect the level of the creatinine. Sodium reabsorption issues cannot be predicted until the degree of true renal functional impairment is better defined.

121. Ureteral peristalsis originates from:
A: preganglionic sympathetic input from T8 through L1.
B: postganglionic fibers arising from the celiac and aorticorenal plexuses.
C: parasympathetic input from the S2 through S4 spinal segments.
D: parasympathetic input from the vagus nerve.
E: intrinsic smooth muscle pacemaker sites in the minor calyces.
ANSWER=E
intrinsic smooth muscle pacemaker sites in the minor calyces." is correct. Ureteral peristalsis does not require autonomic input. It originates and is propagated from the intrinsic smooth muscle pacemaker sites in the minor calyces of the collecting system. The kidneys do receive preganglionic sympathetic input from T8 to L1 and postganglionic fibers from the celiac and aorticorenal ganglia, as well as parasympathetic input from the vagus nerves, however the role of ureteral autonomic input is unclear. This explains why denervated or transplanted kidneys maintain ureteral peristalsis.

122. Ductal carcinoma of the prostate:
A: is best managed with chemotherapy.
B: is associated with high grade disease and recurrence.
C: confers no additional risk.
D: should be graded as Gleason grade 5.
E: commonly arises from the transition zone.
ANSWER=B.
Prostatic ductal carcinoma is an adenocarcinoma that arises in prostatic ducts. It should be graded as a Gleason 4+4 since it shares a cribriform pattern and is associated with high grade disease and recurrence. It should be treated similarly to other high grade adenocarcinomas with combination hormonal therapy/ radiation therapy or radical prostatectomy or cryotherapy or primary hormonal therapy depending on patient age, fitness and preference. Like other carcinomas, ductal carcinoma arises more commonly in the peripheral than the transitional zone.

123. A five-year-old boy has precocious puberty. Scrotal ultrasound reveals a mass in the upper pole of the left testis. FSH and LH are normal prepubertal levels. Testosterone and urinary 17- ketosteroid levels are significantly elevated. The urinary pregnanetriol levels are normal. The next step is:
A: glucocorticoid therapy.
B: biopsy of the mass.
C: enucleation of the mass.
D: simple orchiectomy.
E: radical orchiectomy.
ANSWER=C.
This boy has the classic triad of Leydig cell tumors: precocious puberty, testis mass, and elevated 17-ketosteroid levels. Pituitary lesions may also cause precocious puberty except LH and FSH will be elevated in a prepubertal male. These tumors must be differentiated from hyperplastic nodules of CAH which occur when steroid replacement is inadequate. Although both entities have elevated urinary 17-ketosteroids, only CAH due to the 21-hydroxylase deficiency will cause an elevation in urinary pregnanetriol levels. Glucocorticoid replacement will cause regression of the hyperplastic nodules of CAH. Simple and radical orchiectomy is often performed but not preferred. These tumors are generally benign and preservation of testicular tissue with testis sparing surgery is recommended.

124. Compared to high-level disinfection (Cidex™ - glutaraldehyde), sterilization of a flexible cystoscope offers greater protection against contamination by:
A: bacteria.
B: bacterial spores.
C: Mycobacterium tuberculosis.
D: virus.
E: fungi.
ANSWER=B.
Sterilization, whether by steam under pressure, ozone, ethylene oxide gas or other methods involves the complete destruction of all microbial life, including bacterial spores. Disinfection uses thermal or chemical destruction of pathogenic and other types of microorganisms, and is less lethal than sterilization. High-level disinfection (HLD) cannot kill large numbers of bacterial spores unless they are exposed for an extended time period. Intermediate-level disinfection inactivates M. tuberculosis, vegetative bacteria, most viruses, and most fungi, whereas low-level disinfection cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores.

125. A 55-year-old woman with metastatic RCC has received five months of therapy with sunitinib. She undergoes uneventful right laparoscopic radical nephrectomy for a 5 cm upper pole renal mass. On post-op day one, she is obtunded, febrile, and complains of nausea and diffuse abdominal pain. BP is 80/50 mm Hg, HR 78 bpm, and urine output is 30 ml over four hours. Laboratory studies show a stable hemoglobin of 13.5 g/dl, and normal WBC. Chemistry studies are pending. The next step is normal saline fluid bolus and:
A: I.V. dexamethasone.
B: I.V. desmopressin.
C: CT scan of abdomen and pelvis.
D: angiography.
E: surgical exploration.
ANSWER=A.
The patient described above has the classic symptoms and signs of acute adrenal insufficiency. The most common symptoms and signs of acute adrenal insufficiency occurring in the setting of clinical deterioration are fever, nausea/vomiting, abdominal or flank pain, hypotension, abdominal distention, lethargy/obtundation, hyponatremia, and hypokalemia. The urologist should have a high index of suspicion for acute adrenal insufficiency following radical nephrectomy and the degree should be heightened in a patient receiving sunitinib as it may contribute to the condition. Physicians are advised to monitor for adrenal insufficiency in patients treated with sunitinib who experience stress such as surgery. As this was an upper-pole mass, the ipsilateral adrenal may have been removed or devascularized as well. Emergency treatment of adrenal crisis is normal saline fluid resuscitation, and dexamethasone sodium phosphate injection (Decadron, 4 mg I.V.). Stat serum electrolytes, glucose, cortisol, and plasma ACTH are obtained. A short ACTH stim test to confirm the diagnosis of adrenal insufficiency is then performed. Supportive measures are provided as needed. Mineralocorticoids are unnecessary and ACTH is not useful. CT scan would be indicated if the patient did not respond to fluid and steroids and adrenal insufficiency is ruled out. Angiography and surgical exploration are also premature given the clinical scenario suggestive of adrenal crisis. I.V. desmopressin would not be first line

treatment in this patient with adrenal crisis, but could be indicated if hypotension was refractory to fluid resuscitation and steroids.

126. A patient with an ileal conduit urinary diversion is undergoing renal function tests. The parameter that can be most accurately measured is:
A: creatinine clearance.
B: urinary concentrating ability.
C: fractional excretion of sodium.
D: acid loading.
E: proteinuria.
ANSWER=C.
Measuring renal function in patients with intestinal diversion may be difficult. Most parameters of renal function will be affected by the intestinal absorption of various substances in the urine, including creatinine and urea, as well as secretion of alkalinizing substances and alteration in the osmotic content. Sodium handling in ileal segments is not markedly altered as ammonium substitutes for sodium in the Na/H antiporter in the bowel lumen.

127. A 62-year-old man with Klinefelter Syndrome underwent a mastectomy for breast cancer three months ago. He complains of decreased energy and decreased libido. A total testosterone is 210 ng/dl and LH is 15 IU/I. The next step is therapy with:
A: oral phosphodiesterase inhibitors.
B: low dose transdermal estrogen.
C: aromatase inhibitors.
D: testosterone.
E: beta-hCG.
ANSWER=C.
Men with Klinefelter Syndrome are at increased risk for the development of breast cancer. Approximately 80% of cases are estrogen receptor positive, therefore any treatment that increases estrogen levels is contraindicated unless the patient is cured of breast cancer. This patient has symptomatic hypogonadism which would benefit from an increase in serum testosterone but he was recently treated for breast cancer. In men a portion of testosterone is converted to estradiol, primarily in adipose tissue. Aromatase inhibition will decrease conversion of testosterone to estrogen thereby raising testosterone levels while at the same time decreasing estrogen levels. This is safe in men with breast cancer. Phosphodiesterase inhibitors are indicated for erectile dysfunction which this patient does not complain of. Estrogen therapy has no role in treating these symptoms in men and risks stimulation of breast cancer cell growth. HCG will increase testicular production of testosterone. The increased peripheral testosterone levels from either HCG or testosterone therapy will result in increased estrogen levels due to the peripheral conversion to estrogen. Therefore these are inappropriate therapies in men with breast cancer. In Kleinfelters, patients without breast cancer, standard treatment of hypogonadism with testosterone replacement is safe.

128. A 62-year-old man has a radical prostatectomy for prostate cancer. Histology reveals a Gleason 9, pT3aN1Mx cancer with negative surgical margins. His post-prostatectomy PSA is < 0.1 ng/ml. To minimize his risk of relapse, the next step is:
A: adjuvant docetaxel.
B: external beam XRT.
C: LH-RH agonist therapy for six months.
D: lifelong LH-RH agonist therapy.
E: LH-RH agonist therapy for six months and external beam XRT.
ANSWER=D.
The treatment of men with isolated lymph node metastasis at the time of prostate cancer surgery has been controversial. The use of adjuvant XRT for adverse pathologic characteristics at the time of prostatectomy has been recently evaluated in two large randomized clinical trials. However, patients with lymph node metastasis, such as patients here, were not included in this trial, and it is generally felt that such individuals are at risk of systemic rather than local recurrence. ECOG 3807 evaluated the use of immediate hormonal ablation versus observation inmen with isolated lymph node metastases noted on final pathology after radical prostatectomy. The patients treated with immediate therapy had improved overall and cancer-specific survival relative to men undergoing initial observation. No trial has been performed showing an advantage of any chemotherapy treatment in the adjuvant setting. The advantage of short-term androgen deprivation therapy in this setting has not been established.

129. A five-year-old girl has a history of VUR that has resolved spontaneously. Five months after stopping prophylactic antibiotics, she has dysuria, frequency, urgency, and urge incontinence. She is afebrile and a urine culture is positive for > 105 E coli. The next step is treatment of UTI and:
A: voiding diary and timed voiding.
B: restart prophylactic antibiotics.
C: VCUG.
D: DMSA renal scan.
E: urodynamics.
ANSWER=A.
This child has the symptoms of dysfunctional voiding and cystitis. It is not uncommon for children with dysfunctional voiding habits to develop UTIs, but unless they have VUR, they are unlikely to have pyelonephritis, which is usually associated with a fever. In this setting, it is unnecessary to perform another VCUG or renal scan because the infection was not febrile in nature. Urodynamics are likely to be normal, and the emphasis should be on bladder retraining, to avoid any further episodes. While prophylactic antibiotics may be needed to keep these children infection free while they retrain their bladders, it is preferable to keep them off prophylactic antibiotics if possible. Constipation is often present and should be concurrently treated.

130. A 33-year-old woman has dysuria and fever. Urinalysis shows specific gravity of 1.025, leukocyte esterase positive and nitrite negative. There are 10 RBC's and 30 WBC's per hpf on microscopy. Urine culture will likely grow:
A: Escherichia coli.
B: Pseudomonas aeruginosa.
C: Serratia marcescens.
D: Klebsiella oxytoca.
E: Proteus mirabilis.
ANSWER=B.
Bacteria may convert urinary nitrates into nitrites and this may be used as evidence of UTI. Gram negative bacteria commonly do this, while gram positive species generally do not. One very important exception is Pseudomonas, which does not contain the enzymatic machinery to makethis conversion. Thus, a negative nitrite by urinary dipstick in this patient with symptoms and other UA finding suggesting UTI should likely be treated presumptively pending culture and Pseudomonas is one of the very important, aggressive pathogens that must be considered in this circumstance.

131. A patient with a history of low-grade Ta superficial urothelial carcinoma of the bladder has three new bladder lesions 14 months after last resection. Histology reveals that two of the tumors are Ta while the third is T1. No muscularis propria is seen in the specimens. The next step is:
A: surveillance cystoscopy every three months.
B: intravesical mitomycin C therapy.
C: intravesical BCG therapy.
D: intravesical BCG plus interferon therapy.
E: repeat transurethral resection.
ANSWER=E.

This patient has not been adequately staged which makes the choice of an appropriate therapy difficult. According to the AUA Guidelines on superficial bladder cancer, in the absence of muscularis propria, data suggest that 20 to 40% of patients will have residual tumor and/or unrecognized muscle invasive disease. Therefore, repeat resection is considered a standard in this setting. All other therapeutic options would be inappropriate at this point because the patient has not been completely staged.

132. A 14-year-old girl has primary amenorrhea. She is in the 25th percentile for height and has a webbed neck. Her karyotype is 45 XO. The most likely genitourinary abnormality is:
A: renal agenesis.
B: horseshoe kidney.
C: VUR.
D: UPJ obstruction.
E: vaginal agenesis.
ANSWER=B.
This patient has Turner Syndrome. These girls can be recognized by their typical physical findings including short stature, webbed neck, and shield chest. Girls with the 45 XO karyotype usually exhibit all the stigmata of the syndrome. Patients with the 45 XO/46 XY karyotype are at increased risk for dysgerminoma and gonadoblastoma and require gonadectomy. Horseshoe kidney occurs with increased prevalence in patients with Turner syndrome and a renal ultrasound is warranted. VUR, renal agenesis and vaginal agenesis are not associated with Turner syndrome. UPJ obstruction may occur in association with horseshoe kidney, but is not seen with increased frequency in Turner syndrome.

133. A 45-year-old woman with hypocitraturia and chronic diarrhea is prescribed potassium citrate tablets three times daily. She notices whole tablets in her bowel movements. The next step is:
A: continue therapy, as the medication is still absorbed.
B: increase the medication dosage.
C: switch to liquid preparation of potassium citrate.
D: increase the medication frequency.
E: switch to baking soda.
ANSWER=C.
The goal of potassium citrate therapy is to correct the acidosis associated with chronic diarrheal states. Although in many instances potassium citrate tablets appear in the stool. Although the medication is being absorbed, switching to a liquid preparation is recommended in these patients. The slow release approach is mitigated in these cases. Baking soda and the dosing measures would not achieve the best outcome.

134. A 55-year-old man seeks consultation regarding prostate cancer screening. According to the U.S. Prostate, Lung, Colon, and Ovarian (PLCO) trial, prostate cancer screening increases:
A: prostate cancer detection.
B: detection of Gleason's score 8-10 tumors.
C: detection of high stage (advanced) tumors.
D: prostate cancer survival.
E: quality of life in men with elevated PSA.
ANSWER=A.
The Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial randomly assigned 76,693 men to receive either annual screening (38,343 subjects) or usual care as the control (38,350 subjects). Men in the screening group were offered annual PSA testing for six years and DRE for four years. After seven years of follow-up, the incidence of prostate cancer was higher in the screened population; the number of prostate cancers per 10,000 person-years was 116 (2820 cancers) in the screening group and 95 (2322 cancers) in the control group. Prostate cancer survival was similar between study groups; the incidence of death per 10,000 person-years was 2.0 (50 deaths) in the screening group and 1.7 (44 deaths) in the control group. The numbers of subjects with advanced (stage III or IV) tumors were similar in the two groups, with 122 in the screening group and 135 in the control group, though the number of subjects with a Gleason score of 8 to 10 was higher in the control group (341 subjects) than in the screening group (289 subjects). Quality of life was not assessed. Thus, in this US trial, screening did improve detection rate; however, at a median follow-up of seven years, there was no difference in survival between the two groups.

135. A nine-year-old boy has intermittent gross, painless hematuria. Urinalysis is normal except for numerous red cells without casts. Urine culture and ultrasound are negative. A percutaneous renal biopsy shows segmental glomerulonephritis with immunoglobulin deposition in mesangial areas. The diagnosis is:
A: Alport's syndrome.
B: Henoch-Schonlein purpura.
C: membranous glomerulonephritis.
D: IgA nephropathy.
E: hemolytic uremic syndrome.
ANSWER=D.
One of the most frequent causes of intermittent gross hematuria in children is Berger's disease or IgA nephropathy. While the disease may be more benign in children, occasional cases will progress to renal failure, making its recognition important. These patients should be followed with serum creatinine and 24-hour urine for creatinine and protein. If these indicate mild and stable disease, biopsy is not required. Hemolytic uremic syndrome is the triad of hemolytic microangiopathic anemia in association with thrombocytopenia and renal insufficiency. Henoch- Schonlein purpura (HSP) can present with acute glomerulonephritis and can evolve into IgA nephropathy. HSP is a systemic vasculitis which commonly affects the skin, Gl tract, joints and can affect the kidney. Membranous glomerulonephritis (MGN) is the most common cause of nephritis in adults but seen less frequently in children. The pathologic hallmark of MGN is the presence of glomerular subepithelial immune deposits on electron microscopic examination. Alport's Syndrome is an inherited disorder of glomerular basement membrane due to type IV collagen abnormality and is associated with a hearing loss. The biopsy findings will show abnormality of the glomerular vasculature.

136. A 32-year-old woman with severe pyelonephritis is receiving ampicillin combined with a single daily dose of tobramycin, 7 mg/kg. After 36 hours, she remains febrile and has persistent flank pain. Following the second dose, a trough serum tobramycin level is 12 mcg/ml (5-10 mcg/ml). The next step is:
A: continue current tobramycin regimen.
B: continue tobramycin and start n-acetyl cysteine.
C: decrease tobramycin dose.
D: decrease tobramycin frequency.
E: discontinue tobramycin and start aztreonam
ANSWER=D.
When combined with TMP-SMX or ampicillin, aminoglycosides are the first drugs of choice forfebrile UTIs. Their nephrotoxicity and ototoxicity are well-recognized; hence, careful monitoring of patients for renal and auditory impairment associated with infection is indicated. Once-daily aminoglycoside regimens have been instituted to maximize bacterial killing by optimizing the peak concentration to minimal inhibitory concentration ratio and reduce potential for toxicity. Administering an aminoglycoside as a single daily dose can take advantage not only of its concentration-dependent killing ability but also of two other important characteristics: timedependent toxicity and a more prolonged post-antimicrobial effect. The regimen consists of a fixed 7 mg/kg dose

of gentamicin or 5-7 mg/kg tobramycin. Subsequent interval adjustments are made by using a single concentration in serum and a nomogram designed for monitoring of oncedaily therapy. Antimicrobial doses are given at the interval determined by the drug concentration of a sample obtained after the start of the initial infusion. This regimen is clinically effective, reduces the incidence of nephrotoxicity, and provides a cost-effective method for administering aminoglycosides by reducing ancillary service times and serum aminoglycoside determinations. In this case the serum level of tobramycin is high and requires adjustment. Changing to q 36 hours is indicated. Decreasing the dose may lead to the same reduction in levels but with a reduction in effectiveness. Although the patient continues to have symptoms, this is common during the initial course of pyelonephritis and is not an indication at 48 hours to change antibiotic regimen.

137. A 30-year-old man has persistent hypertension and paroxysmal headaches. Plasma catecholamine levels are 1100 ng/l. Three hours after a single oral dose of clonidine, 0.3 mg, catecholamine levels are 400 ng/l. The most likely diagnosis is:
A: renal artery stenosis.
B: pheochromocytoma.
C: essential hypertension.
D: adrenal hyperplasia.
E: idiopathic hyperaldosteronism.
ANSWER=C.
Rarely, patients with suspected pheochromocytoma present with normal or mildly elevated plasma catecholamines. When signs and symptoms of pheochromocytoma are present and plasma catecholamines are mildly elevated, it is critical that the cause of hypertension is determined. The best way to distinguish between essential hypertension and pheochromocytoma in this situation is an oral clonidine test. Patients with essential hypertension will experience a significant drop in plasma catecholamines, while those with pheochromocytoma will not. The clonidine test is not useful in assessing for renal artery stenosis, adrenal hyperplasia or idiopathic hyperaldosteronism.

138. A healthy five-year-old boy is evaluated for bloody urethral discharge. VCUG demonstrates a diverticulum of the bulbous urethra. The most likely explanation for the radiographic finding is:
A: utricle.
B: straddle injury.
C: meatal stenosis.
D: urethral duplication.
E: Cowper's gland duct cyst.
ANSWER=E.
A diverticulum of the bulbous urethra in a young male is most commonly related to dilation of a Cowper's gland duct. The ducts of Cowper's gland open into the urethra in the bulb and travel to the glands located in the urogenital membrane adjacent to the membranous urethra. These cysts have been found in 2.3% of autopsied males; however, they are rarely diagnosed clinically. Straddle injury usually is associated with stricture formation. Urethral duplication, although a possibility here, is much less common and often associated with infection. A utricle would enter the prostatic urethra.

139. A 25-year-old man is struck by an automobile. He has a left superior and inferior pubic ramus fracture as well as a fracture of the sacroiliac joint. He has a palpable bladder. No blood is noted at the meatus and the prostate is in normal position on DRE. The next step is:
A: CT urogram.
B: retrograde urethrogram.
C: cystogram.
D: abdominal ultrasound.
E: suprapubic tube.
ANSWER=B.
The most likely genitourinary injury in this patient is a prostatomembranous urethral disruption, as suggested by the type of pelvic fracture. Fractures of the pubic rami, in particular the medial inferior ramus, and pubic diastasis are independent predictors of urethral injuries. In most patients, in the absence of blood at the urethral meatus, catheterization is appropriate as the first step. However, in a high risk patient with a palpable bladder and inferior ramus fracture, a urethrogram is the easiest, most specific, and most rapid way to assess urethral injury. Upper tract imaging is not indicated in patients with pelvic fracture. Cystography may be indicated, but not before the urethra has been determined either by retrograde urethrogram or catheterization, to be intact. CT urogram is not a sensitive or specific test for urethral injury. Abdominal ultrasound may demonstrate intraperitoneal fluid but is unlikely to detect injuries to the urethra. Suprapubic cystostomy is not indicated prior to evaluation of the urethra. A gentle attempt at urethral catheterization may be appropriate prior to imaging in the unstable patient.

140. In a 65-year-old man with RCC, the panel of molecular markers that would be most predictive of good prognosis is:
A: high carbonic anhydrase IX. absent vimentin. absent p 53 expression.
B: low carbonic anhydrase IX. positive vimentin. absent p53 expression.
C: high carbonic anhydrase IX. positive vimentin. positive p53 expression.
D: low carbonic anhydrase IX. absent vimentin, positive p53 expression.
E: high carbonic anhydrase IX. positive vimentin. positive p53 expression
ANSWER=A.
In multivariate analysis of a microarray of multiple RCC, certain molecular markers were independently predictive of survival in patients. Those that were predictive of longer survival included high carbonic anhydrase IX (CAIX), absent vimentin and absent p53 expression. CAIX is a von Hippel-Lindau mediated enzyme. High expression of CAIX predicts favorable prognosis. These factors were predictive independent of clinical variables.

141. A three-year-old child with a duplicated collecting system has VUR to the upper renal segment upon voiding. The most appropriate statement is:
A: this type of anomaly is commonly bilateral.
B: the ureter to the upper segment is ectopic.
C: the ureter to the lower segment is ectopic.
D: the ureter to the lower segment is obstructed.
E: reflux to the upper system occurs frequently with complete ureteral duplication
ANSWER=B.
With complete ureteral duplication, the upper pole ureter is more likely to have an ectopic insertion. VUR is more common into the lower pole segment. Reflux into the upper pole moiety alone occurs in children when the orifice is ectopic in the bladder neck or urethra. The ureter lacks trigonal support and has an inadequate submucosa tunnel. This situation occurs in less than 10% of cases of complete ureteral duplication. Ureteral duplication, incomplete or complete, occurs in 0.8% of the population. As many as 40% of cases are bilateral, but most of these are insignificant partial ureteral duplications. Bilateral ectopic insertion of the upper pole ureter with VUR into this moiety alone is very rare. The lower pole ureteral segment would not be ectopic as that would not follow the Weigert-Meyer rule (lower pole VUR, upper pole obstruction). There is no

reason to suspect that the lower pole is obstructed if there is VUR into the upper pole system.

142. A 26-year-old man had blunt abdominal trauma. An abdominal CT scan revealed a deep renal laceration and urinary extravasation. After ten days of expectant management, a repeat CT scan reveals persistent urinary extravasation with a small urinoma. He remains stable and afebrile. Thenext step is:
A: continued observation.
B: insertion of a ureteral stent.
C: percutaneous perinephric drainage.
D: percutaneous nephrostomy drainage.
E: surgical exploration and repair.
ANSWER=B.
Patients with blunt injuries of the kidney have been managed successfully with observation alone even when there is evidence of urinary extravasation and preliminary imaging studies. Extravasation resolves in approximately 85% of renal injuries without the need for internal or external drainage. However, patients with persistent extravasation should be managed with optimized drainage of urine with an internal ureteral stent. This may require additional decompression of the bladder to allow complete closure of the injury to the collecting system. Percutaneous nephrostomy tube placement may be difficult in a patient without hydronephrosis and percutaneous perinephric drainage is not necessary unless there is evidence of infection or large urinoma formation. Surgical exploration and repair is excessively invasive; ten days after injury such an exploration may increase the likelihood of nephrectomy due to the difficulty of renorrhaphy in the face of significant perinephric reaction to urine leakage.

143. The factor most predictive of finding fibrosis only during post-chemotherapy RPLND for germ cell tumor is:
A: use of bleomycin chemotherapy regimen.
B: size of pre-chemotherapy retroperitoneal mass.
C: normal post-chemotherapy CT scan.
D: teratoma in primary tumor.
E: normal preoperative serum tumors markers.
ANSWER=C.
Normal serum tumor markers following chemotherapy are associated with a 10-20% chance of viable germ cell tumor and 30% probability of teratoma. Normal CT scan with no lymph node larger than 8 mm is associated with a greater than 90% chance of fibrosis at the time of RPLND. The presence or absence of bleomycin in the chemotherapy regimen is not associated with probability of response and the prechemotherapy mass size or stage is not a powerful predictor of post chemotherapy histology. Normal pre-chemotherapy tumor markers and the presence of teratoma are not predictive of fibrosis at RPLND.

144. An eight-year-old, 25 kg boy with pyelonephritis has vomiting and diarrhea for three days. Serumelectrolytes are: sodium 150mEq/l, potassium 3.0mEq/l, chloride 117mEq/l, bicarbonate 25mEq/l. The most appropriate I.V. therapy for the first 24 hours is:
A: 0.25 NS with 40mEq/l of KCI at 100 cc/hr.
B: D5W with 40mEq/l of KCI at 200 cc/hr.
C: NS with 40mEq/l of KCI at 100 cc/hr.
D: NS with 40mEq/l of KCI at 75 cc/hr.
E: D5W with 10mEq/l of KCI at 200 cc/hr.
ANSWER=A.
The child has significant hypernatremia and hypokalemia. Most cases of hypernatremia are due to loss of water or failure to adequately replace water loss. In this case, water loss is due to diarrhea and vomiting. These extrarenal water losses are associated with a decrease in extracellular fluid volume indicating deficits in total body sodium as well as water. The proportionally greater deficiency of water than of sodium leads to the increase in the serum sodium concentration. Initial fluid replacement in this child should replace the water loss and salt losses with a hypotonic salt solution (0.25NS with 40 mEq/l KCI at 100 cc/hr) at a rate 1.5-2.Ox maintenance.

145. A 37-year-old man sustains a high velocity pelvic gunshot wound with no obvious ureteral injury at exploration. Two days later, during a scheduled second look operation the distal ureter appears contused. There is no extravasation of I.V. indigo carmine. The next step is:
A: continued observation.
B: cystoscopy and ureteral stent.
C: percutaneous nephrostomy.
D: ureteroneocystostomy.
E: debridement and ureteroureterostomy.
ANSWER=B.
Blast injury represents a complex set of events resulting in direct or indirect soft tissue damage. The initial blast can cause tissue damage, and propelled fragments can cause penetrating injuries. Falling objects or impact from blast displacing the victim's body against a stationary object usually cause blunt injuries but could also cause penetrating injuries. Additionally, victims often suffer burns from the heat discharged by the explosive device or by fire ignited by the blast. Gunshot wounds represent localized tissue damage similar to the initial blast described above. The degree of injury reflects the weapon, bullet, and distance from the projectile to the affected organ. Bullet velocity has the greatest effect on soft tissue damage; whether bullet velocity reflects tissue damage precisely is controversial. However, high-velocity weapons clearly cause extensive soft tissue damage. The greater the bullet velocity, the larger the temporary cavity created, indicating the extent of soft tissue stretch and destruction The progressive changes seenon day one post injury suggest an evolving blast injury. Minor ureteral contusions from penetrating mechanisms can be treated with stent placement. Caution must be exercised, however, as minor-appearing ureteral contusions may stricture later or break down secondary to unappreciated microvascular damage to the ureter. Thus, in this case, stenting is the next step because a more severe injury is not evident. When tissue damage appears more significant the injured portion of the ureter should be debrided and ureteroureterostomy used to repair the injury. Exceptions to this are the pelvic ureter, for which reimplantation is preferred over ureteroureterostomy due to the poor blood supply to the distal ureter. Although percutaneous nephrostomy is useful in establishing proximal diversion of urine, it is probably not yet indicated in this case; furthermore, stenting across the injured segment is strongly recommended to reduce the risk of complete obliteration.

146. During open inguinal hernia repair, a 19-year-old man undergoes complete excision of an incidental 2 cm spermatic cord mass. The final pathology shows well-differentiated leiomyosarcoma with negative surgical margins. A metastatic survey is negative. The next step is:
A: surveillance
B: inguinal orchiectomy with high ligation of the cord
C: XRT to the inguinal region.
D: RPLND.
E: systemic chemotherapy.
ANSWER=B.
Paratesticular leiomyosarcoma occurs most commonly during the first two decades of life. On gross inspection, these tumors appear circumscribed, but on microscopic examination they often extend well beyond the margin seen by the naked eye. Despite achieving a negative margin, local recurrence risk is significant. Because of this, the primary paratesticular tumor should be removed by inguinal orchiectomy with high ligation of the cord. Excision of the inguinal

scar is also usually performed at time of orchiectomy to reduce local recurrence. Chemotherapy and radiation are reserved for patients with gross or microscopic residual disease after surgical resection. RPLND for stage I paratesticular leiomyosarcoma is not indicated.

147. During an abdominal surgery, a solid fibrous cord-like structure is encountered, coursing lateral to the bladder and ascending on the posterior aspect of the anterior abdominal wall toward the umbilicus. This structure represents a remnant of the:

A: Wolffian duct.
B: Mullerian duct.
C: urogenital sinus.
D: hypogastric artery.
E: umbilical vein.
ANSWER=D.

The fetal hypogastric arteries carry de-oxygenated blood to the umbilical arteries and placenta. When the placental circulation ceases at birth, the part of the hypogastric artery distal to the superior vesical artery is converted into a solid fibrous cord which becomes the medial umbilical ligament (obliterated hypogastric artery).

148. A 35-year-old man has primary infertility. On physical exam, neither vas deferens is palpable, each testis is 34 ml in volume. Semen analysis reveals a 0.3 ml volume and azoospermia. The man and his wife would like to pursue all options for parenthood. The next step is:

A: scrotal ultrasound
B: Y-chromosome microdeletion analysis and karyotype.
C: cystic fibrosis mutation analysis on both partners.
D: diagnostic testicular biopsy with scrotal exploration.
E: donor sperm intrauterine insemination.
ANSWER=C.

The majority of patients with congenital bilateral absence of the vas deferens (CBAVD) are found to have mutations or 5T polymorphism of the CFTR (cystic fibrosis transmembrane regulator protein) gene. Men with CBAVD may have subtle pulmonary disfunction such as recurrent bronchitis and other family members may carry CF mutations, therefore the man should be offered CF testing. If the female partner has a CF mutation, the couple's children have a 50% chance of having mutations in both CF genes and developing clinical cystic fibrosis. CF testing of both partners is ideal if the couple is considering sperm retrieval and ICSI. Diagnostic testicular biopsy is not necessary since CBAVD is associated with obstructive azoospermia. Scrotal exploration will not find the vas deferens. CBAVD patients should have normal karyotypes and will not have AZF deletions of the Y-chromosome. Scrotal ultrasound will not add any useful information. While donor insemination is an option, it is not the next step if the couple is considering all options.

149. A 20-year-old man with stage 1 NSGCT (80% yolk sac, 20% seminoma) without lymphovascular invasion opts for surveillance but is concerned about radiation doses he will receive with CT scans. A reasonable treatment schedule for his CT surveillance would be:

A: chest and abdominal/pelvic CT scans at 3. 6. 9. 12. and 24 months.
B: abdominal/pelvic CT scans at 3. 12. and 24 months.
C: chest and abdominal CT scans at 3 and 24 months.
D: abdominal CT scan at 12 months.
E: chest and abdominal CT scans at 3 and 12 months.
ANSWER=E.

A recent randomized, controlled trial evaluating patients with clinical stage 1 NSGCT concludes that "CT scans at 3 and 12 months after orchidectomy should be considered a reasonable option in low risk patients." This schedule was compared with CT scans at 3, 6, 9, 12, and 24 months. This less intensive CT scanning regimen is recommended for low-risk patients such as this patient. This patient does not have any high risk features (significant embryonal cell CA component and/or lymphovascular invasion). An alternative strategy to reduce radiation is to use abdominal MRI scan, although this has not been systematically studied.

150. An eight-year-old boy undergoes PCNL. An intraoperative nephrostogram shows contrast in the large bowel. The best management is ureteral stent and:

A: diverting colostomy.
B: primary colonic repair.
C: remove nephrostomy and low residue diet.
D: retain nephrostomy and perform barium enema
E: withdraw nephrostomy into colon.
ANSWER=E.

The child has suffered a colonic perforation. Although rare, this complication due to a retrorenal colon is more common in patients with neurogenic bowel. The majority of these injuries can be managed nonoperatively with a double-J stent, tube drainage of the colon, low residue diet and broad-spectrum antibiotics. The tube is left in the colon for seven to ten days. If a contrast study at that time shows no evidence of extravasation or fistula formation, the tube can be removed. Open exploration is reserved for patients with intraperitoneal perforation, peritonitis, or sepsis.

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1. A 55-year-old man with post-prostatectomy incontinence underwent placement of an artificial urinary sphincter with good results for three years. He now complains of recurrent incontinence. Examination of the device and cystoscopy suggests normal cycling and no cuff erosion. The next step is:

A. deactivate device for a two month trial period.
B. alpha-blocker therapy.
C. antimuscarinics.
D. urodynamics.
E. surgical exploration for repair or replacement.
ANSWER=D

Urethral atrophy results from chronic compression of the corpus spongiosum by the cuff and is the leading cause of urinary incontinence in this setting. However, urodynamic evaluation may reveal involuntary detrusor contractions or decreased bladder compliance. Deactivation will not permit improved sphincter function. Surgical exploration is not indicated if the cause of the incontinence is unrelated to the device (e.g., detrusor overactivity or impaired compliance). Alpha-blockers would not be expected to have any effect on urinary incontinence in this case regardless of the underlying cause. Antimuscarinics would not treat causes of incontinence related to device malfunction. Treatment options for this patient would include downsizing the cuff movement to a more proximal or distal location or the addition of a second cuff placed in tandem.

2. The recommended method to prevent postoperative DVT in an otherwise healthy man undergoing TURP under spinal anesthesia is:

A. subcutaneous low dose unfractionated heparin.
B. low molecular weight heparin.
C. aspirin.
D. early ambulation.
E. obtain preoperative lower extremity duplex studies.
ANSWER=D

The AUA Best Practices Policy on DVT prophylaxis stated that early ambulation is recommended for the vast majority of men undergoing TURP. Those men who are at increased risk for DVT (such as previous DVTs, malignancy, immobility, paresis, etc.) may benefit from pneumatic compressive stockings, subcutaneous low dose unfractionated heparin, or low molecular weight heparin (LMWH). However, the use of LMWH is contraindicated in a patient who receives spinal or epidural anesthesia as this is a FDA black box warning due to risk of spinal hematoma. Aspirin and other antiplatelet drugs, while highlyeffective at reducing vascular events associated with atherosclerotic disease, are not recommended for DVT prophylaxis in surgical patients. There is no indication for obtaining preoperative LE-duplex studies in an otherwise healthy male.

3. A 66-year-old woman has a polypoid mass at her urethral meatus. Office biopsy demonstrates a non-invasive high-grade squamous cell carcinoma. Radiologic staging reveals no evidence of regional or distant disease. The next step is:

A. topical 5-FU cream.
B. laser fulguration.
C. circumferential excision including excision of anterior vaginal wall.
D. XRT with ilioinguinal lymphadenectomy.
E. anterior pelvic exenteration with pelvic lymphadenectomy.
ANSWER=C

In female urethral cancers, treatment recommendations are primarily dependent on tumor location and clinical stage. Local excision may be sufficient for the relatively uncommon small, superficial, distal urethral tumors, and can result in excellent functional results. For more proximal and advanced urethral tumors, a more aggressive approach is warranted. Small, exophytic, superficial tumors arising from the urethral meatus or anterior urethra (as in this case) may be surgically treated with circumferential excision of the distal urethra including a portion of the anterior vaginal wall. The distal third of the urethra may be excised while still maintaining urinary continence. Tumors in the distal urethra tend to be low stage, and cure rates of 70% to 90% have been achieved with local excision alone. 5-FU cream has been utilized in the treatment of carcinoma-in situ of the penis, but does not have a defined role in female urethral cancers. Although XRT has been effectively used for female urethral cancers, the addition of prophylactic lymphadenectomy in this choice makes it incorrect. Recommendations for performing groin dissection have been made only for patients who present with positive inguinal or pelvic lymphadenopathy without distant metastasis, or patients who develop adenopathy during surveillance. Anterior pelvic exenteration is employed for patients with proximal urethral cancers often as part of a multimodal approach including chemotherapy and XRT.

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4. The nephrotoxic effect of cisplatin is due to:

A. efferent arteriolar constriction.
B. afferent arteriolar constriction.
C. pre-existing plasma volume contraction.
D. a direct toxic effect on renal tubular cells.
E. renal tubular obstruction from drug precipitation.
ANSWER=D

Cisplatin nephrotoxicity is due to a direct toxic effect of the drug on renal tubular cells. Azotemia and dehydration are predisposing conditions which increase the risk of this complication. Cisplatin is not precipitated in the renal tubules nor does it affect glomerular hemodynamics.

5. A 45-year-old woman with prior pelvic radiation for cervical cancer develops severe hemorrhage from the right ureteral orifice during routine exchange of a chronic indwelling 6 Fr ureteral stent. Over the next six hours, she continues to bleed but remains stable. The next step is:

A. replace stent with 8 Fr stent.
B. right percutaneous nephrostomy.
C. ureteroscopy with fulguration.
D. angiography and placement of endovascular graft.
E. open exploration.
ANSWER=D

Most cases of ureteroarterial fistulas are reported in patients with a prior history of vascular disease, radiation therapy, or pelvic surgery, especially in the setting of indwelling ureteral stents. In fact, ureteroarterial fistulas are highly associated with indwelling stents. The routine urologic and radiologic evaluation of hematuria will not generally provide evidence of ureterovascular fistula. Even in suspected or proven cases, preoperative radiologic investigations including nonselective arteriography and pyelography are often nondiagnostic. This is especially true in patients with intermittent hematuria in whom there is no active bleeding at the time of the radiographic investigation, presumably because of thrombus over the site of the fistula. Selective or subselective arteriography of the iliac vessels may be more revealing in suspected cases, and provocative maneuvers such as stent removal or mechanical friction of the ureteral lumen by manipulation of the stent may be necessary to demonstrate the fistulous connection in patients without active bleeding undergoing angiography. These adjuvant maneuvers should be performed only with extreme caution in an appropriate setting where immediate angiographic or surgical intervention is possible. In a review, retrograde pyelography was diagnostic in only 6 of 10 patients in whom it was performed, and arteriography diagnosed a ureterovascular fistula in only 4 of 14 cases. Indirect evidence of a ureteroarterial fistula can be found on CT, but findings are usually nonspecific and suggestive only in retrospect after a

confirmed diagnosis by other means. Nevertheless, in a stable patient with a suspected ureterovascular fistula, a full radiographic evaluation may be pursued, not only for diagnostic purposes but also to evaluate potential reconstructive options and in select cases to perform therapeutic angiographic embolization procedures. As thesepatients may present in extremis with hypotension and severe hemorrhage, surgical intervention must be considered early, especially since radiographic evaluation may be nondiagnostic. In this stable patient, an attempt at angiography and placement of an endovascular graft is warranted. Open exploration may be needed if hematuria persists. Replacement of the ureteral stent or percutaneous nephrostomy will not stop the hemorrhage.

6. With a pneumoperitoneum of 15 mmHg the following changes would be expected: Heart Rate GFR Mean Arterial Pressure

A. increased decreased increased
B. increased decreased decreased
C. increased increased decreased
D. decreased increased decreased
E. decreased decreased increased

ANSWER=A

The pneumoperitoneum used in laparoscopy will have an effect on the cardiovascular, renal and respiratory systems. With pressures = 20 mmHg (most commonly used pressure for laparoscopy is 15 mmHg), heart rate, mean arterial pressures and systemic vascular resistance are all increased. Alterations in venous return and cardiac output are variable and are dependent on the hydration of the patient. In the hypovolemic or euvolemic state both venous return and cardiac output are decreased due to compression of the vena cava, however if the patient is hypervolemic, (fluid overloaded) the vena cave will resist the increase in the intraabdominal pressure and both venous return and cardiac output increased. The GFR is decreased due to compression of the renal vein and renal parenchyma by the elevated intraabdominal pressure.

7. A 22-year-old sexually active woman complains of vulvovaginal itching and flu-like symptoms. On physical exam, she is afebrile and the only finding is a fissure in the left labia majora with no vaginal discharge. Urinalysis is negative. The treatment that can prevent recurrence of her symptoms is:

A. hydrocortisone cream.
B. diphenhydramine cream.
C. ceftriaxone IM.
D. imiquimod cream.
E. oral acyclovir.

ANSWER=E

This patient has genital herpes (herpes simplex virus, HSV), of which 85-90% are caused by HSV-2 and 10-15% are caused by HSV-1. Initial genital herpes infection is often associatedwith constitutional flu-like symptoms. While vesicular eruptions can be found on physical exam, women especially may present with atypical lesions such as abrasions, fissures or itching. Empiric treatment may be initiated. Diagnosis can be helped by serology tests for antibodies to HSV-2 and HSV-1. Antiviral creams are not helpful for genital herpes. Oral acyclovir has been shown to prevent recurrence of genital herpes and associated symptoms. Hydrocortisone cream is not recommended for the treatment of genital herpes, however, recent studies suggest that a combination of topical acyclovir and hydrocortisone cream may reduce the recurrence of herpes labialis. Ceftriaxone is an appropriate treatment for chancroid but not genital herpes. Topical imiquimod is not recommended for treatment of routine genital herpes but is being used to treat recalcitrant cases of acyclovir-resistant herpes in immunocompromised hosts.

8. Sodium reabsorption in the proximal tubule:

A. results in a hypotonic tubular fluid.
B. occurs against a steep concentration gradient.
C. is accompanied by bicarbonate excretion.
D. occurs by an active transport mechanism.
E. is regulated by aldosterone.

ANSWER=D

About two-thirds of the glomerular ultrafiltrate is reabsorbed in the proximal tubule with little change in the osmolality or sodium concentration of the unreabsorbed fraction. In other words, fluid reabsorption in the proximal tubule is nearly isosmotic and is coupled to the active transport of sodium. Since chloride and bicarbonate are the primary anions in the extracellular fluid, most of the filtered sodium is reabsorbed with these anions. Because of the high water permeability of the proximal tubule, sodium transport occurs against a minimal concentration gradient. Aldosterone regulates sodium-potassium exchange in the collecting duct.

9. A 61-year-old man with a serum creatinine of 1.7 mg/dl has a 5 cm upper pole left renal mass. He undergoes left partial nephrectomy. After complete gross resection of the mass frozen section reveals lymphoma with diffuse infiltration of normal renal parenchyma by lymphoma at the margins. His cold ischemic time was 18 minutes. The next step is:

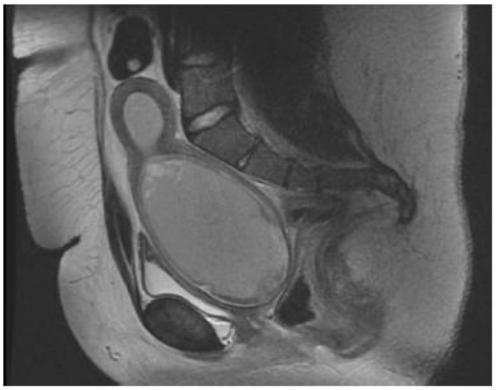
A. no further operative intervention.
B. re-excision of tumor bed.
C. cryotherapy of margin.
D. biopsy of contralateral kidney.
E. radical nephrectomy.

ANSWER=A

The unexpected finding of renal lymphoma at the time of renal cortical tumor surgery is rare. Ninety percent of these cases are not primary renal lymphoma but rather systemic lymphoma with renal manifestation. Non-Hodgkin's lymphomas are the most common subtype. Multifocal masses, bilaterality and regional lymphadenopathy are all more common in renal lymphoma than in renal cortical tumors. In this patient the presence of diffuse renal infiltration by lymphoma will make post-operative systemic therapy necessary. In the setting of compromised renal function every attempt should be made to spare the remaining nephron mass in preparation for systemic chemotherapy. Therefore further surgical intervention is not warranted and completion of the operation and subsequent postoperative discussion regarding systemic therapy is the most logical next step.

10. A healthy one-month-old girl has lower abdominal distention. An ultrasound demonstrates a cystic mass behind the bladder. Follow up MRI scan is shown. Physical exam reveals normal appearing genitalia with a single opening in the urethral position with no evidence of a vaginal opening. These findings are most consistent with:

A. Mayer-Rokitansky syndrome.
B. androgen insensitivity syndrome.
C. transverse vaginal septum.
D. imperforate hymen.
E. CAH.



ANSWER=C

The MRI scan shows evidence of a distended upper vagina and presence of a uterus which is most consistent with either a transverse vaginal septum or distal vaginal agenesis. Transverse vaginal septa are believed to arise from a failure in fusion or canalization (or both) of the urogenital sinus and Müllerian ducts. Many of the patients present at puberty with primary amenorrhea and a distended upper vagina. A complete transverse vaginal septum may be located at various levels in the vagina, but there is a higher frequency in the middle and upper third of the vagina. Transperineal, transrectal, and abdominal ultrasonography and MRI scan may be beneficial in establishing the diagnosis and determining the location and thickness of a transverse vaginal septum. Vaginal atresia occurs when the urogenital sinus fails to contribute to formation of the lower (distal) portion of the vagina. Mayer-Rokitansky syndrome is characterized by either partial or complete absence of the vagina and coexisting uterine abnormalities, with the uterus either partially or completely absent. In Mayer-Rokitansky syndrome, the fallopian tubes and ovaries are present but may be either normal or hypoplastic. Two types exist, type I that involves only the Müllerian structures (vagina and uterus) and type II that will involve concurrent abnormalities of either the cardiac, renal or otologic systems.Androgen insensitivity syndrome is characterized by the absence of a uterus, salpinx, and upper 2/3 of the vagina, these structures regress under the active influence of MIF secreted from the testes. CAH infant will manifest an enlarged clitoris and genital ambiguity, with variable lengths of a urogenital sinus present dependent upon the degree of androgen secretion from the adrenal glands. An imperforate hymen should demonstrate a visible bulging membrane at the vaginal introitus.

11. A 34-year-old man amputates his penis during a psychotic episode. He is brought to the emergency department in stable condition with cold ischemia time of the amputated penis of six hours. Microvascular reconstruction or macroscopic replantation of the penile shaft provides an equivalent outcome for:

A. penile skin preservation.
B. urethral stricture formation.
C. erectile function.
D. penile sensation.
E. infection.

ANSWER=C

Microvascular reconstruction involves reanastomosis of the dorsal arteries, dorsal vein, and nerves. Macroscopic replantation is the simple anastomosis of the corpora cavernosum and urethra. Erectile function after either microvascular reconstruction or macroscopic replantation of the penile shaft is roughly 50%. Penile skin loss, urethral stricture formation, and loss of penile sensation are all greater with macroscopic replantation as compared to microvascular reconstruction of the penile shaft. Infection of the penile shaft after either technique has not been studied to date.

12. A 71-year-old healthy, uncircumcised man has a 4 cm penile tumor and undergoes partial penectomy. Pathology reveals high grade squamous cell carcinoma invading the corpora cavernosum with negative surgical margins. After four weeks of antibiotic therapy, staging evaluation reveals bilateral bulky fixed, inguinal adenopathy and bilateral pelvic adenopathy. The next step is:

A. pelvic lymph node biopsy.
B. sentinel inguinal lymph node biopsy.
C. XRT to inguinal nodes.
D. bilateral pelvic and inguinal lymph node dissection.
E. neoadjuvant cisplatin, ifosfamide, and paclitaxel.

ANSWER=E

This patient has a T2 (invasion into the corpus spongiosum or cavernosum) N3 (palpable fixedinguinal lymph nodes or nodal mas, either bilateral or unilateral) disease. In patients with unresectable primary tumors or bulky regional lymph node metastases, neoadjuvant treatment with a cisplatin-containing regimen is the most effective treatment modality and may allow curative resection. A phase 2 study using four courses of neoadjuvant paclitaxel, ifosfamide and cisplatin chemotherapy for TxN2-3 disease followed by bilateral inguinal lymph node dissections, and unilateral or bilateral pelvic lymph node dissections revealed excellent response with an objective response rate of 55% and complete pathologic response rate of 10%, toxicity was acceptable with no treatment-related deaths. This treatment is superior to single agent chemotherapy and has less toxicity than the previous multi-agent chemotherapeutic regimen of cisplatinum, bleomycin, and methotrexate. The optimal chemotherapy regimen however has yet to be determined. In this patient with bilateral bulky fixed nodes not responding to antibiotics, a needle biopsy of the lymph nodes could be considered for pathologic diagnosis. However, neither pelvic lymph node biopsy, sentinel inguinal lymph node biopsy, nor bilateral pelvic inguinal and inguinal lymph node dissection would be curative and would predispose the patient to non-healing surgical incision sites. Similarly, XRT to the inguinal nodes would not be curative for this extensive disease.

13. A 40-year-old man with spina bifida undergoes ileovesicostomy and bladder neck closure with omental flap interposition for severe incontinence. Three months later he develops recurrent incontinence from a vesicourethral fistula. The next step is:

A. tube vesicostomy.
B. permanent nephrostomy tubes.
C. repeat bladder neck closure with omental interposition.
D. repeat bladder neck closure with rectus flap interposition.
E. ileal conduit.

ANSWER=D

Persistent vesicourethral fistula occurs frequently with bladder neck closure where vascularized tissue is not interposed between the bladder neck and urethra. Omentum is the most commonly used tissue for interposition but occasionally is not available or cannot be brought down to the level of the bladder neck closure. When this is not possible, or in high risk cases (radiated patients, persistent vesicourethral fistulae, etc.) a rectus abdominus pedicle flap can be used for interposition. Tube vesicostomy will not help this patient as he will continue to be incontinent and it has been a lengthy interval since his surgery. Permanent nephrostomy tubes are undesirable and the patient may well continue to be incontinent. An ileal conduit can be considered but would be significantly more extensive than repeating the bladder neck closure.

14. Radiation exposure from a single abdominal CT scan is:

A. on average 50 times greater than that from an anterior-posterior abdominal x-ray.
B. is less harmful to the digestive organs compared to the brain.
C. results in less cancer risk in younger patients.
D. increased with automatic exposure-control option.
E. the result of non-ionizing radiation.

ANSWER=A

There are an estimated 60-70 million CT scans performed in the USA, perhaps with 33% being unnecessarily performed. CT scans generate ionizing radiation with resulting DNA damage that could result in the induction of cancer. The cancer risk of CT scans is higher in the pediatric population. Furthermore, the digestive organs are more sensitive to radiation injury than the brain. Newer CT scans have automatic exposure-control option which will decrease the radiation exposure. An abdominal x-ray results in a dose of 0.25 mSv to the stomach whereas a single CT scan of the abdomen can result in a radiation dose 50 times or greater to the stomach.

15. A 30-year-old man is diagnosed with stage 3 NSGCT. He undergoes radical orchiectomy and four cycles of BEP chemotherapy. His tumor markers have normalized. However, he has a 10 cm retroperitoneal mass and three 1 cm pulmonary masses (50% size reduction after chemotherapy). After his RPLND, the next step is:

A. observation with serial imaging.
B. PET scan with resection of lung masses if positive.
C. resection of lung masses.
D. resection of lung masses if retroperitoneum has active tumor.
E. resection of lung masses if retroperitoneum has teratoma.

ANSWER=C

There is about 75% concordance between retroperitoneal pathology and pulmonary mass pathology, however approximately 25% of cases will have discordant pathology (i.e. retroperitoneal fibrosis and active tumor or teratoma in the lung field). Therefore, postchemotherapy thoracotomy yields important prognostic information and is curative in patients with resected teratoma and a subset of patents with viable tumor. PET scanning is a valuable decision making tool for retroperitoneal post-chemotherapy seminoma for residual masses greater than or equal to 3 cm. In this patient population, provided the PET scans are performed six weeks after the last chemotherapy cycle (decreased false positives), PET scans have a negative predictive value of 96% and a positive predictive value of 78% for active seminoma. This helps identify patients who merit additional treatment for post-chemotherapy seminoma retroperitoneal masses. PET scans useful ness,however, for the evaluation of supra-diaphragmatic, residual pulmonary nodules or mediastinal masses has not been extensively studied and recommendations for its use in this clinical situation have yet to be determined.

16. A 53-year-old diabetic man sustains a minor proximal crural perforation during primary implantation of a three-piece inflatable penile prosthesis via a penoscrotal approach. The best management is:

A. abort the procedure.
B. secure exit tubing of the ipsilateral cylinder.
C. extend corporotomy for primary repair.
D. place a malleable implant.
E. direct closure via perineal approach.

ANSWER=B

A common intraoperative complication with penile prosthesis surgery is crural perforation. If this occurs with insertion of an inflatable device with attached tubing, placing a tunica albuginea closure suture on either side of the exit tubing to keep the cylinder in place has worked sufficiently without requiring a more extensive repair. A more significant perforation injury, including damage to the urethra, would require termination of the procedure. Placement of a malleable prosthesis is not advised as it cannot be secured and will be more likely to erode.

17. A 43-year-old man desires a biological child with his 38-year-old wife. Both testes are 5 cm in longitudinal axis and firm on physical examination. Two semen analyses show azoospermia with volumes of 2.1 and 2.3 ml. FSH is 2.8 IU/l. The next step is:

A. adoption.
B. TRUS.
C. evaluation of the wife.
D. testicular sperm extraction with ICSI.
E. microsurgical scrotal ductal reconstruction.

ANSWER=C

The likelihood of obstructive azoospermia is 96% with testis longitudinal axis greater than 4.6 cm and FSH less than 7.6 IU/l. However, the most significant predictor of any form of reproductive intervention is maternal age, with female fecundity declining precipitously after age 37. The decision to perform microsurgical scrotal ductal reconstruction or to obtain sperm from the testis for IVF and intracytoplasmic sperm injection rests on evaluation of the female partner, especially after age 37. Transrectal ultrasound is not necessary if semen volumes are normal (> 1.5 ml) as ejaculatory ductal obstruction is unlikely.

18. A 66-year-old man undergoes a radical nephrectomy with adrenalectomy for an 8 cm upper pole RCC within the kidney. There is a focus of non-contiguous, metastatic RCC in the adrenal gland. No lymph nodes were removed. According to the 2010 TNM AJCC classification, pathologic stage is:

A. T1bN0Mx.
B. T1bNxM1.
C. T2aNxM0.
D. T2aNxM1.
E. T4NxM0.

ANSWER=D

According to the 2010 TNM AJCC staging, renal cancers greater than 7cm and less than or equal to 10 cm are now categorized as pT2a. Lesions greater than 10 cm are pT2b. Adrenal gland involvement depends on whether there is contiguous involvement (T4) or noncontiguous involvement (M1). The M1 designation is true even if the adrenal gland is on the ipsilateral side as the nephrectomy. When there are no pathologic lymph nodes available, the pathologic staging is designated as NX.

19. The finding most suggestive of renal artery stenosis on duplex ultrasonography is:

A. decreased diastolic flow.
B. turbulent systolic flow.
C. increased peak systolic velocity.
D. renal aortic ratio < 3.5.
E. resistive index < 0.8.

ANSWER=C

Duplex ultrasound of the renal arteries is a useful noninvasive anatomic study for the diagnosis of renal artery stenosis (RAS). Although an altered flow pattern distal to the stenosis, including decreased diastolic flow and a turbulent systolic jet, can be suggestive of RAS, the most important single indicator is a peak systolic velocity (PSV) > 180 cm/sec. The renal aortic ratio (RAR) is the ratio of renal PSV to the aortic PSV. A RAR > 3.5 indicates > 60% stenosis. The renal resistive index does not directly assess renal artery flow.

20. A 28-year-old man with Kallmann syndrome is treated with exogenous testosterone. He desires a biological child. Semen analysis reveals a volume of 2.2 ml and azoospermia. The next step is:

A. post-ejaculate urinalysis.
B. assay testosterone, LH and FSH.
C. administer GnRH.
D. administer hCG and recombinant FSH.
E. testicular sperm extraction for IVF.

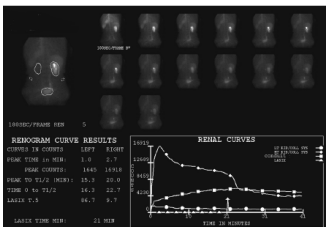
ANSWER=D

Kallmann syndrome, anosmia or hyposmia associated with hypogonadotropic hypogonadism is commonly diagnosed due to a delayed onset of puberty. Most patients are treated with exogenous testosterone at the time of their diagnosis for virilization. Testosterone is easy and cost effective to administer compared to daily injections of alternative hormones. Azoospermia in these patients results from the combination of inadequate levels of intratesticular testosterone, and the patient's natural absence of stimulatory pituitary hormones. When the patient desires to father children, spermatogenesis can be brought about by discontinuing parenteral testosterone and beginning daily IM or SQ injections of hCG and recombinant FSH. If the response is insufficient, GnRH administration may be considered but is expensive and requires I.V.

administration. In patients with low ejaculate volume (< 1.5 ml), a post-ejaculate urine is useful to diagnose retrograde ejaculation, this patient's ejaculate volume is normal. Assay of testosterone, LH and FSH is not needed in this patient in whom a diagnosis of Kallmann syndrome has already been made. It would be inappropriate to proceed with testicular sperm extraction without first giving the hormonal treatment necessary to stimulate spermatogenesis.

21. A healthy 66-year-old woman has a loopogram as shown seven years following cystectomy and ileal conduit for bladder cancer. CT scan demonstrates bilateral hydronephrosis and no evidence of recurrent disease. Chest x-ray and urine cytology are normal. Serum creatinine is 1.8 mg/dl. A renogram is also shown. The next step is:

A. looposcopy.
B. bilateral percutaneous nephrostomy.
C. stomal revision.
D. revision of left ureteroileal anastomosis.
E. left nephroureterectomy.



ANSWER=E

This patient has developed upper tract deterioration following cystectomy and ileal conduit diversion. This has been reported in some series to occur in over 50% of patients with long-term follow-up. The renogram in this instance demonstrates no obstruction to the right renal unit with hydronephrosis likely the result of chronic reflux. The renogram also demonstrates no significant function of the left renal unit. Because there is no reflux into the left system it cannot be monitored as to the possible development of upper tract urothelial carcinoma. In this setting, nephroureterectomy is recommended. Looposcopy will not add to the evaluationas it will not provide access to the left system. Bilateral percutaneous nephrostomy is not indicated because there is no evidence of obstruction of the right side. Similarly, there is no evidence of stomal stenosis. Revision of left ureteroileal anastomosis should not be undertaken for a non-functioning kidney. Another option would be left nephrostomy tube placement, antegrade studies, and selective cytology to further risk stratify the patient prior to making a final decision.

22. A 64-year-old man had a TURP six months ago and has an AUA Symptom Score of 5. He has persistent gross hematuria requiring cystoscopy and clot evacuation. Friable prostatic tissue was noted during cystoscopy. He does not wish to undergo further surgical treatment. The next step is:

A. tamsulosin.
B. finasteride.
C. tamsulosin and finasteride.
D. bicalutamide.
E. antibiotics for one month.

ANSWER=B

Finasteride is an effective option for the management of gross hematuria after TURP for BPH. None of the other listed treatments (e.g., tamsulosin and bicalutamide) have efficacy or have been evaluated in this setting. It is known that one of the early effects of finasteride is the intraprostatic suppression of vascular endothelial growth factor. Clinically, finasteride has been shown to effectively treat post-prostatectomy hematuria, especially in the presence of friable prostate tissue. If hematuria does not resolve with this therapy then evaluation of the upper urinary tract should be considered to rule it out as the source of bleeding. Prolonged antibiotics would only be indicated in the setting of UTI suspected to be of prostatic origin.

23. A 56-year-old man has low libido and a normal physical exam. Morning serum testosterone is 365 ng/dl and prolactin is 48 ng/ml (normal < 20 ng/ml). The next step is:

A. repeat prolactin assay.
B. serum LH assay.
C. pituitary MRI scan.
D. testosterone replacement.
E. bromocriptine.

ANSWER=A

Elevated serum prolactin from a pituitary tumor that causes clinical symptoms such as low libido, infertility and gynecomastia is usually accompanied by a low serum testosterone. A mildly elevated prolactin, especially accompanying a serum testosterone in the normal range,is rarely clinically significant. Because prolactin has high interassay variability, an elevated prolactin should first be verified by repeat testing. With a normal testosterone, LH assay is unhelpful and exogenous testosterone is not indicated. Likewise, a man with mildly elevated prolactin and normal testosterone is unlikely to benefit from bromocriptine, and MRI is unlikely to reveal a clinically significant anatomic pituitary lesion. The most common cause of low libido in a man with a normal physical exam and adequate testosterone is psychological.

24. The neurovascular bundles on the prostate travel between the following two layers of fascia:

A. levator and prostatic.
B. Denonvilliers' and levator.
C. Denonvilliers' and prostatic.
D. lateral pelvic and prostatic.
E. lateral pelvic and levator.

ANSWER=A

The prostate is covered with three distinct and separate fascial layers: Denonvilliers' fascia, the prostatic fascia, and the levator fascia. Denonvilliers' fascia is a filmy, delicate layer of connective tissue located between the anterior walls of the rectum and prostate. The neurovascular bundle on the prostate contain the cavernosal nerves and are located between the layers of the levator fascia and prostatic fascia.

25. A 71-year-old woman has difficulty voiding two hours following injection of a transurethral bulking agent. Residual urine volume is 400 ml. The next step is:

A. observation.
B. alpha-blockers.
C. CIC.
D. indwelling urethral catheter.
E. suprapubic cystostomy.

ANSWER=C

Although the majority of patients do not have difficulties voiding following injection of a bulking agent, when retention does occur, it should be treated with CIC using a small (10- 14 Fr) catheter. Larger catheters, indwelling catheters. or large urethral sounds will push the mucosal blebs apart or cause molding of the bulking agent around the catheter. Suprapubic cystotomy can be used if long term catheterization is needed, although this is very rare.

26. A 27-year-old woman in the seventh week of pregnancy has right flank pain. Ultrasonography demonstrates a 5 mm calculus at the right UPJ. Urine culture isnegative. The next step is:

A. hydration and analgesics.
B. stone protocol CT scan.

C. ureteral stent.
D. percutaneous nephrostomy.
E. SWL.
ANSWER=A
Between 66% and 85% of women with ureteral colic will spontaneously pass their calculi with hydration and analgesic therapy. If the calculus fails to pass with conservative therapy, a ureteral stent should be placed cystoscopically with sonography or minimal radiographic imaging, as the first trimester presents the period of greatest risk of teratogenicity and spontaneous abortion. Ureteroscopy is an acceptable alternative. Fluoroscopy should be avoided. Pregnancy is an absolute contraindication for the use of SWL.

27. A 25-year-old man has a solid testes mass. His tumor markers are negative. He has an 8 cm retroperitoneal mass and multiple 1-2 cm. pulmonary metastases. His radical orchiectomy reveals pure seminoma. After chemotherapy his retroperitoneal mass is 2.8 cm and his pulmonary masses have resolved. PET/CT reveals no enhancement of his retroperitoneal mass. The next step is:
A. observation.
B. percutaneous biopsy of retroperitoneal mass.
C. resection of retroperitoneal mass.
D. bilateral RPLND.
E. salvage chemotherapy.
ANSWER=A
PET imaging is useful to assess post-chemotherapy residual masses after treatment of seminoma. Lesions that are less than 3 cm or non-enhancing can be safely observed as over 90% of seminoma postchemotherapy masses are fibrosis. Percutaneous biopsy is not reliable since the masses can be heterogeneous. Resection of non-enhancing masses is not necessary and resection of seminoma post-chemotherapy masses can be technically difficult or impossible. Resection of the mass and bilateral RPLND would be appropriate for NSGCT post-chemo masses but are not necessary in the post-chemo seminoma setting because of the low risk of cancer or teratoma in the remainder of the retroperitoneum. Salvage chemotherapy is not necessary and is highly toxic.

28. Normal bladder compliance during physiologic filling is primarily due to:
A. autonomic nerve activity.
B. circulating hormones.
C. cholinergic receptor activity.
D. local secretion of nitric oxide.
E. bladder wall viscoelasticity.
ANSWER=E
The main determinants of compliance are the elastic and viscoelastic properties of the bladder. When these are destroyed as in fibrosis of the bladder, poor compliance results. Neurogenic influences may be operative in late stages of filling. Bladder smooth muscle maintains a steady level of contractility and tone that is dependent on the activity in the autonomic nerves, circulating hormones, local metabolites, locally secreted agents such as nitric oxide, and temperature.

29. A 32-year-old man has azoospermia. Y chromosomal microdeletion assay reveals azoospermia factor b (AZFb) and azoospermia factor c (AZFc) deletions. The next step is:
A. adoption.
B. clomiphene citrate.
C. recombinant FSH.
D. testis biopsy.
E. microsurgical testicular sperm extraction.
ANSWER=A
The long arm of the Y chromosome harbors genes intrinsic to spermatogenesis, including the azoospermia factor (AZF). While males with AZFc deletions may or may not have sperm in the seminiferous epithelium, an AZFa and/or AZFb deletion in combination with an AZFc deletion uniformly results in a Sertoli cell only phenotype. Biopsy is unnecessary, and microsurgical testicular sperm extraction will not yield sperm. Endocrine therapy with clomiphene citrate to stimulate Leydig cell production of testosterone, or with recombinant follicle stimulating hormone to stimulate Sertoli cell function, will not yield sperm as no germ cells are present.

30. A 71-year-old man previously treated for CIS of the bladder has a positive fluorescence in-situ hybridization (FISH) urine test. Cytology, CT urogram, and cystoscopy are normal. The next step is:
A. observation.
B. repeat FISH test.
C. random bladder biopsies.
D. bilateral upper tract cytology.
E. bilateral ureteroscopy.
ANSWER=C
The urinary FISH test identifies intranuclear chromosomal abnormalities that have been associated with bladder cancer. Specifically it detects aneuploidy for chromosome 3,7 and 17 and homozygous loss of chromosome 9p21. This test is currently FDA approved for the evaluation of microscopic hematuria and bladder cancer. In 2007 Yoder and colleagues reported that 35/56 (62.5%) patients with prior urothelial carcinoma who had a normal evaluation by cystoscopy and a positive FISH subsequently were detected to have recurrent disease. The appropriate workup of this patient population remains highly variable, however random bladder biopsies are considered the standard of care for patients with a positive urine cytology and negative cystoscopy and should be regarded as a minimum evaluation in this high risk patient. The yield of upper tract endoscopy and cytology in the setting of a normal CT urogram is low and should be discouraged as an initial diagnostic maneuver. Because the patient has a history of bladder cancer, the most likely site of recurrence is in the bladder. Repeat FISH will not add anything to the evaluation, whether positive or negative.

31. A 58-year-old man has frequency and bothersome nocturia with an AUA Symptom Score of 16. History and physical exam are normal, Urinalysis is negative. The next step is:
A. frequency-volume chart.
B. serum creatinine.
C. uroflowmetry.
D. cystoscopy.
E. pressure-flow study.
ANSWER=A
According to the recently updated guidelines on management of BPH by the AUA Practice Guideline Committee, recommended components of the diagnostic algorithm for routine evaluation include history, assessment of LUTS with an AUA Symptom Score, physical examination including DRE and urinalysis. A frequency-volume chart should be obtained if nocturia is a predominant symptom. Urodynamics, cystoscopy and serum creatinine are not required as part of the initial evaluation.

32. A 52-year-old man requires six units of packed red blood cells over a 48-hour period five days after a percutaneous nephrolithotomy. He remains hypotensive at 85/50 mmHg. Imaging study is shown. The next step is:
A. emergent exploration and repair of kidney.
B. selective arterial embolization.
C. bedrest, blood transfusion, and close monitoring.

D. insertion of a large-bore percutaneous tamponade catheter in nephrostomy tract.
E. insertion of an indwelling ureteral stent and urethral catheter decompression.

ANSWER=B
Delayed bleeding after percutaneous procedures is almost always secondary to pseudoaneurysms or arteriovenous fistulas. Both can present with delayed and intermittent bleeding. Arteriovenous fistula bleeding is more likely to be continuous compared with pseudoaneurysms. Management is renal angiography during active bleeding (with the aid of an arterial vasodilator such as papaverine if necessary) and highly selective angiographic embolization. Continued conservative therapy would be incorrect in the face of hemodynamic instability after appropriate resuscitative efforts. A tamponade catheter may be used as a temporizing measure if the nephrostomy tract is still present. The image presented demonstrates absence of a nephrostomy tube. An indwelling ureteral stent will not address the ongoing hemorrhage. Emergent exploration may lead to need for nephrectomy and a conservative approach is more appropriate.

33. A 40-year-old newly-diagnosed HIV positive man has a 2.0 cm. painless red nodule on his glans penis. A biopsy confirms Kaposi's sarcoma. The next step is:
A. initiate highly active antiretroviral therapy (HAART).
B. systemic chemotherapy.
C. laser ablation.
D. excise the lesion.
E. partial penectomy.
ANSWER=A
The first step in treatment of Kaposi's sarcoma in patients with HIV is to initiate HAART or to optimize the HAART regimen, which generally results in remission of Kaposi's sarcoma. Local treatment can include laser therapy, cryotherapy, surgical excision, application of topical retinoids. Disseminated or visceral Kaposi's sarcoma is treated with combination chemotherapy. The gold standard combination therapy of doxorubicin, bleomycin and vincristine has been replaced in recent years with liposomal anthracyclines, such as doxorubicin. Kaposi's sarcoma is also often seen in immunosuppressed patients, such as renal transplant patients, and in this setting the treatment is a reduction of the immunosuppressive regimen. In the current era of immunosuppression, the frequency of this is diminished.

34. A 78-year-old malnourished woman with a history of prior pelvic radiation for cervical cancer undergoes a radical cystectomy and ileal loop diversion with bilateral ureteralstents for urothelial cancer. At the time of surgery, the bowel shows signs of radiation changes. Four days post-operatively, her urine output decreases with a marked increase in output from her abdominal drain. The next step is:
A. parenteral hyperalimentation.
B. placement of a catheter into the ileal stoma.
C. bilateral percutaneous nephrostomy tube placement.
D. revision of the ureteroileal anastomoses.
E. excision of the ileal loop and replacement with a transverse colon conduit.
ANSWER=B
Leakage and fistula from urinary diversion occur in 2 to 9% of patients. However, 20 to 60% of these fistulae close spontaneously. Conservative management can be safely attempted assuming the patient is not septic and that adequate drainage is maintained. Leakage could be from the ureteral ileal anastomosis or from the butt end of the conduit. Bilateral ureteral stents are already in place, which should address any concerns about a ureteral ileal anastomotic leak. Therefore, the best initial therapeutic maneuver in this patient is placement of a catheter into the ileal loop to facilitate drainage. While hyperalimentation is important in malnourished patients and should also be initiated, this would not address the immediate issue of the leak. If the stomal catheter failed to decrease the fistulous output, bilateral percutaneous nephrostomy tubes could be placed to divert the urinary stream. If this failed, surgical intervention would be required to address the problem.

35. During ureteroscopic lithotripsy of an impacted 8 mm calcium oxalate stone in the proximal ureter, the ureter is cleared, but a 3 mm fragment is detected on fluoroscopy 1 cm lateral to the ureter. The next step is:
A. observation.
B. ureteral stent.
C. basket extraction.
D. percutaneous nephrostomy.
E. retroperinoscopy.
ANSWER=B
A small stone fragment pushed through the wall of the ureter, if completely outside the wall and uninfected, is rarely a clinical problem and no intervention, such as retroperitoneoscopy or basket extraction, needs to be directed towards it. The ureteral perforation through which this fragment passed is managed by ureteral stenting; observation without a stent would lead to extravasation and a higher risk of stricture. Percutaneous nephrostomy and drain placement are not necessary if a stent can be inserted.

36. A man with castrate-resistant prostate cancer and bone metastases is on leuprolide acetate injections and intravenous zoledronic acid injections. He is asymptomatic. Zoledronic acid injections must be stopped if the patient develops:
A. fever.
B. fatigue.
C. a tooth abscess.
D. a pathologic fracture.
E. severe osteoporosis.
ANSWER=C
Zoledronic acid and other bisphosphonates have become an important part of the management of patients with prostate cancer bone metastasis. These compounds reduce bone resorption by inhibiting osteoclastic activity and proliferation. In patients with progressive hormone refractory bone metastatic prostate cancer, zoledronic acid has been shown to reduce the incidence of skeletal events in a randomized prospective trial. Adverse events include fatigue, myalgias, fever, anemia and elevations in serum creatinine. Osteonecrosis of the mandibular bone is a severe complication of bisphosphonates usually associated with patients undergoing dental work or who have poor dentition or chronic dental disease. The bisphosphonates should be immediately discontinued in the setting of osteonecrosis or expected invasive dental procedures.

37. In the management of advanced urologic malignancies, stimulation of T cells by dendritic cells:
A. is restricted to the Class I MHC (major histocompatibility complex).
B. causes T cell differentiation into plasma cells.
C. is suppressed by TNF (tumor necrosis factor).
D. is augmented by blockade of the T cell receptor.
E. produces interleukins.

ANSWER=E
An integral part of the immune response involves the activation of T cells by dendritic or antigen presenting cells. This interaction occurs via the T cell receptor in the context of MHC (major histocompatibility complex) class II molecules. B cells, unlike T cells, can be directly stimulated by antigen, which then allows B cell differentiation into antibody producing plasma cells. TNF (tumor necrosis factor) and other cytokines are produced by activated T cells and augment the cellular and humoral immune response. An FDA-approved autologous dendritic cell therapy, sipuleucel-T, is currently available for the treatment of advanced prostate cancer.

38. A 38-year-old woman has intermittent right flank pain. CT scan shows delayed filling ofa right upper pole anterior calyceal diverticulum containing an 8 mm stone. The best treatment is:
A. observation.
B. SWL.
C. ureteroscopy, incision of the diverticular neck and laser lithotripsy.
D. percutaneous nephrostolithotomy and dilation of the infundibular neck.
E. laparoscopic ablation of calyceal diverticulum and stone removal.
ANSWER=C
Observation is unacceptable in this symptomatic patient with a diverticular stone. Although SWL may be used successfully to treat a subset of patients with stones in calyceal diverticula that have a broad infundibular neck, the overall stone free rates with SWL are unacceptably low. Percutaneous nephrostolithotomy is not only associated with the highest stone-free rate, but also the procedure results in resolution of the diverticulum. However, anteriorly-located diverticula necessitate percutaneous access through the renal parenchyma with a high risk of bleeding complications. The ureteroscopic approach is ideal for upper pole calyceal diverticula with < 2 cm stones. Laparoscopic ablation would be indicated for an anterior calyceal diverticulum > 2 cm.

39. In a patient with muscle invasive urothelial carcinoma, the pathologic characteristic that predicts a poor response to neoadjuvant chemotherapy is:
A. squamous differentiation.
B. lymphovascular invasion.
C. micropapillary variant.
D. p53 mutation.
E. small cell component.
ANSWER=C
Patients with histologic variants of urothelial carcinoma including squamous differentiation and small cell component actually appear to respond better to neoadjuvant chemotherapy. Similarly patients with a p53 mutation and lymphovascular invasion are considered higher risk patients with urothelial cancer and are recommended to have neoadjuvant chemotherapy. Micropapillary variant of urothelial carcinoma is the one variant that does not appear to respond to chemotherapy and requires immediate cystectomy.

40. A 62-year-old woman with multiple sclerosis has persistent urinary urgency and frequency. Pressure flow urodynamics reveal detrusor overactivity during bladder filling that reproduces her symptoms as well as increased pelvic floor EMG activity during voiding. An MRI scan will most likely reveal evidence of demyelination:
A. of the cerebral cortex.
B. of the cerebellum.
C. between the pons and sacral spinal cord.
D. between the conus medullaris and the cauda equina.
E. between the sacral spinal cord and the bladder.
ANSWER=C
Multiple sclerosis may involve the central and/or peripheral nervous systems. Depending on the location, level and extent of demyelination, a variety of urodynamic patterns may result. Pelvic floor EMG activity in this individual is increased during voiding which suggests striated sphincter dyssynergia, a urodynamic finding that exists only with neurological lesions between the pons and the sacral spinal cord. Lesions at or distal to the sacral spinal cord would likely result in detrusor areflexia and lesions above the pons result in detrusor overactivity with synergistic activity of the proximal and distal sphincter mechanisms.

41. A 28-year-old woman awaiting a liver transplant because of primary biliary cirrhosis is symptomatic from a 9 mm proximal ureteral stone. Management should be:
A. observation and hydration.
B. ureteral stent.
C. SWL.
D. stent placement and SWL.
E. ureteroscopic laser lithotripsy.
ANSWER=E
A 9 mm stone in the proximal ureter has little chance of spontaneous passage; as such, observation is futile. Although SWL and ureteroscopy are both acceptable treatment options for management of a proximal ureteral stone, uncorrected bleeding diathesis frequently found in patients with liver dysfunction is a contraindication to SWL. Although it is optimal to correct bleeding diatheses prior to surgical intervention for stones, full correction of coagulation parameters often requires administration of multiple blood products and lengthy hospital stays. Ureteroscopy and Holmium:YAG laser lithotripsy has been shown to be safe and effective in patients with uncorrected bleeding disorders.

42. A six-year-old girl undergoes bilateral ureteral reimplantation. On the first post-operative day, she has severe bladder spasms refractory to parenteral opioids and oral antimuscarinic agents. Her urine is clear, and the creatinine is 0.4 mg/dl. The next step is:
A. oral alpha blocker.
B. oral benzodiazepine.
C. rectal acetaminophen.
D. I.V. ketorolac.
E. caudal block.
ANSWER=D
For post-operative bladder spasms refractory to the conventional pain management using opioids and antimuscarinics, intravenous ketorolac (NSAID) administered at 0.25 to 0.5 mg/kg every six hours is effective in reducing bladder spasms following bladder surgery. However, significant adverse effects have been reported including renal failure, prolonged bleeding and hypersensitivity reactions. It should be avoided in patients with renal insufficiency, NSAID sensitivity, persistent post-operative bleeding, and dehydration. Other treatments such as alpha blocker, benzodiazepine, rectal acetaminophen and caudal block do not provide any additional benefit.

43. A 26-year-old woman has a 2 cm, circumferentially calcified saccular aneurysm on renal arteriography. Her blood pressure is 126/82 mm Hg and her creatinine is 1.1 mg/dl. She is newly married and considering pregnancy. The next step is:
A. observation.
B. serial imaging.
C. lisinopril.
D. endovascular stent.
E. surgical repair.
ANSWER=E
Pregnancy is a risk factor for renal artery aneurysm rupture, regardless of size or calcification, therefore observation and serial

imaging are not recommended. If this was not a woman of child-bearing age, the aneurysm could be followed, as it is not large and completely calcified. Lisinopril will not reduce the likelihood of rupture or ischemic damage. An endovascular stent is not recommended for someone in this age group, due to the risk of lifelong anticoagulation therapy. She should be counseled to undergo surgical treatment of her aneurysm prior to becoming pregnant.

44. A 35-year-old man with uric acid calculi has a nighttime urinary pH of 5.5, despite potassium citrate 40 mEq TID. The next step is adding:
A. allopurinol.
B. acetazolamide.
C. ascorbic acid.
D. sodium citrate.
E. hydrochlorothiazide.
ANSWER=B
Acetazolamide is effective in increasing the urinary pH in patients with uric acid and cystine stone formation who are already taking potassium citrate. However, 50% of patients may discontinue the medication due to adverse effects. Acetazolamide, a carbonic anhydrase inhibitor, leads to an increase in urinary bicarbonate and increased H+ reabsorption. It has been shown to increase overnight urine pH when given at bedtime. Allopurinol is effective for uric acid stones but does not increase pH, and might be considered but only if urinary uric acid levels were high. Sodium citrate has been shown to be less effective than potassium citrate therapy. Hydrochlorothiazide may increase urine uric acid.

45. A five-year-old boy has developed frequent daytime urination, voiding at least every 30 minutes. He has no nocturia. Since toilet training at age two, he has been continent day and night. His urinalysis is normal. The most appropriate management is:
A. reassurance.
B. VCUG.
C. antimuscarinics.
D. glucose tolerance test.
E. cystoscopy.
ANSWER=A
Excessive urinary frequency in children is occasionally seen. The diagnosis is made by noting that the patient is continent of urine day and night and the urinalysis is normal. The key to the diagnosis is that the frequency does not persist at night. In this child, his urinary frequency falls under the category of a nervous habit, and may be associated with emotional stress. Urinary frequency generally goes away over time averaging three to six months. It can return in some patients but eventually resolves. Antimuscarinics seldom help these patients whose bladders are normal. Invasive testing such as VCUG and cystoscopy are not indicated since the findings are almost always normal. In the presence of a normal urinalysis, glucose tolerance testing is not indicated.

46. A 38-year-old woman develops monthly cyclical episodes of hematuria and menouria one year following Caesarean section. She does not desire more children. CT urogram demonstrates contrast in the bladder and uterine cavity; there is no hydronephrosis. The best treatment is:
A. cystoscopy, fulguration and catheter drainage.
B. LH-RH agonist.
C. transvaginal repair with Martius flap.
D. transvaginal repair with omental flap.
E. transabdominal repair with hysterectomy.
ANSWER=E
Vesicouterine fistula (also known as, Youssef syndrome) is found to be the etiology for 2-4% of all genitourinary fistula. A vesicouterine fistula is a rare complication that classically develops following a Cesarean section. The mechanism of the injury occurs as a consequence of incorporating the bladder wall with the sutures used to close the Cesarean section site, hence, it is frequently a delayed complication noted only as the sutures dissolve. It is also occasionally seen to arise following a dilation and curettage (D&C) procedure or as a consequence of a vaginal delivery following a prior Cesarean section. Due to the sphincteric like activity of the uterine cervix, these patients may not present with urinary incontinence. Indeed, 60% of the patients will present with intermittent or cyclical gross hematuria (menouria; menstrual tissue passed through the urine when voiding) as their only symptom, 20% with chronic urinary incontinence (incompetent uterine sphincter), and 20% with the classic Youssef triad: menouria, amenorrhea (all menstrual tissue passed into the urine) and chronic urinary incontinence. Since radiographic and endoscopic studies may frequently be inconclusive, the diagnoses of this complication requires a high degree of clinical suspicion. Tests used will consist of cystoscopy in an attempt to visualize the fistula tract, ultrasonography, CT cystogram, MRI scan, or hysterosalpingogram, the latter of which is presumably the most certain diagnostic technique available. Once the diagnosis is made, additional tests to rule-out concurrent ureteral injuries must be performed. If the diagnosis of a vesicouterine fistula is made within three to six months of the surgery, conservative treatment with a indwelling urethral catheter and endocrine suppression of menstrual flow has been successful in > 50% of patients. Once the tract has matured and epithelized as in this case, treatment is based on the future fertility desires of the patient. If the individual does not desire to have further children, the most definitive treatment is by transabdominal hysterectomy and repair of the bladder. If additional child bearing is requested, either transvaginal, or transabdominal approaches may be used dependent upon the location of fistula. Juxtaposition of adjacent tissue such as omentum or a labial fat pad (Martius flap) greatly reduces the likelihood of recurrence. These dissections are frequently complicated and placement of bilateral ureteral stents prior to the surgery to help identify the ureters is recommended.

47. Condyloma lata are associated with:
A. cervical carcinoma.
B. gonococcal urethritis.
C. herpes simplex virus.
D. secondary syphilis.
E. AIDS-related complex.
ANSWER=D
Condyloma lata are a cutaneous manifestation of secondary syphilis. They appear as flesh colored or hypopigmented, macerated papules or plaques. They most commonly involve genital and anal areas. The lesions are typically smooth and moist. Condyloma lata resemble condyloma acuminata but are distinguished by their smooth, flat and moist appearance. Condyloma lata have not been associated specifically with cervical carcinoma, gonococcal urethritis, herpes simplex, or HIV.

48. A seven-year-old boy with a seizure disorder is managed with a ketogenic diet and topiramate, has one episode of painless gross hematuria. Renal ultrasound demonstrates 3 mm stones in the lower pole of both kidneys without hydronephrosis. The next step is:
A. consult neurologist for alternative seizure treatment.
B. urinary alkalinization.
C. oral penicillamine.
D. SWL.
E. ureteroscopic laser lithotripsy.
ANSWER=A
Both ketogenic diet and topiramate (Topamax®) can cause calcium phosphate stones. This child with small non-obstructing kidney

stones, discovered after a single episode of painless gross hematuria, does not require surgical intervention at this time. Seeking alternative seizure pharmacotherapy by consulting a neurologist is the best next step. The stone is likely calciumbased, and thus medical therapy aimed at uric acid (raise the pH) or cystine (oral penicillamine) stones are not appropriate.

49. While performing a videourodynamic study in a patient with neurogenic bladder, the patient develops a severe headache. The neurological condition most likely to be associated with this event is:

A. hemorrhagic stroke in globus pallidus.
B. conus medullaris injury.
C. spinal cord infarct at T4.
D. astrocytoma displacing the reticulospinal tract at T8.
E. multiple sclerosis.
ANSWER=C

Autonomic dysreflexia is a medical emergency caused by over stimulation of the sympatheticnervous system in individuals with spinal cord injuries at or above the 5th thoracic (T5) spinal cord levels, although patients with injuries between T6-10 maybe susceptible. Autonomic dysreflexia is classically stimulated by: an overfilled bladder, colonic distension (constipation), decubitus ulcer or silent orthopedic fracture. Patients exhibiting autonomic dysreflexia are symptomatic with complaints of a headache, flushing and diaphoresis (above the level of the spinal cord lesion), hypertension and bradycardia. Bradycardia occurs due to a reflex stimulated from stretch on the atrial ventricular node by the elevation in blood pressure. When seen in the office setting, the first step should be to empty the bladder and remove all noxious stimuli, i.e., cystoscope, urodynamic catheter, from the bladder. If the elevation in blood pressure does not respond, the patient should be treated with ½ to 1 inch of nitropaste to the chest wall. If rebound hypotension occurs the nitropaste maybe rapidly wiped off of the skin. Other options of pharmacologic therapy for autonomic dysreflexia in the office setting include oral or sublingual nifedipine. However, rebound hypotension can be problematic and difficult to deal with.

50. A 55-year-old diabetic woman has new onset pneumaturia. The next step is:

A. pelvic CT scan.
B. cystoscopy.
C. urine culture.
D. cystogram.
E. barium enema.
ANSWER=C

Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. Common causes of fistula are diverticulitis, carcinoma of the sigmoid colon, and regional enteritis (Crohn disease). Patients with diabetes mellitus may have gas-forming infections, with carbon dioxide formation from the fermentation of high concentrations of sugar in the urine. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60% of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Culture results showing multiple organisms is suggestive of a colovesical fistula.

51. In 46 XX female patients with CAH, the clitoral nerves at the mid-portion of the enlarged phallic shaft are found:

A. ventrally.
B. dorsally.
C. laterally.
D. between the urethra and vagina.
E. between the shafts of the corpora cavernosa.
ANSWER=B

The clitoral neural anatomy in the masculinized female patients with CAH is similar to that of the normal male or female phallus. At the mid-portion of the enlarged clitoral shaft, the nerves are found dorsally. This is the area which must be preserved for possible future genital sensation after the feminizing genitoplasty.

52. A 57-year-old woman reports a vaginal bulge ten years after hysterectomy. On examination, she is found to have anterior prolapse, with the most distal point noted at her hymenal ring. Her vault and posterior wall show no prolapse. The POP-Q points consistent with her exam are:

A. Aa -1, C 0, Ap -3, stage 1.
B. Aa -1, C 0, Ap -1, stage 1.
C. Aa 0, C -7, Ap -3, stage 2.
D. Aa 0, C -7, Ap -1, stage 2.
E. Aa +1, C +2, Ap -3, stage 3.
ANSWER=C

The POP-Q (pelvic organ prolapse quantification) is a classification system used to quantify the degree of pelvic organ prolapse (POP). Nine points are measured in relation to the hymenal ring, which is designated as "0" (zero). Any points located above the hymenal ring are given a negative value, corresponding to the number of centimeters (cm) the point is above the hymen, whereas points distal to the hymen are given positive values. Aa and Ap correspond to the point three cm up on the anterior and posterior walls, respectively, and will be -3 if there is no POP. Ba and Bp correspond to the distal-most aspect of the anterior and posterior walls, respectively. The well-supported vault (C) should be at about -7 to -9. This patient has a cystocele and no posterior or apical prolapse. The distal-most portion of her anterior vagina is at 0, the level of the hymenal ring. Ap, which corresponds to approximately the level of the bladder neck, is -3. The vault is supported at -7. This is stage 2, which is defined as the most distal point of the POP being between +1 and -1, or within 1 cm of the hymen. Other points of measurements in POP-Q include the genital hiatus (GH), perineal body (PB), and total vaginal length (TVH).

53. A 26-year-old man has progressive left flank pain 17 years after an open pyeloplasty. Diuretic renography reveals 28% function from his left kidney with delayed renal pelvic drainage (T1/2 = 40 minutes). Retrograde ureterogram shows a 1 cm narrowing at the UPJ. The best treatment is:

A. balloon dilation.
B. endopyelotomy.
C. nephrectomy.
D. pyeloplasty.
E. ureterocalycostomy.
ANSWER=B

Pyeloplasty may result in early or delayed failure. Failure is most likely secondary to an anastomotic stricture. Transmural endopyelotomy whether performed in a retrograde or antegrade approach is the treatment of choice. Ureterocalycostomy may be considered, but only after less invasive treatments. It should be reserved for patients with intrarenal pelvis, dilated lower calyces or a lengthy proximal ureteral stricture. Nephrectomy should be reserved for kidneys with minimal renal function. Balloon dilation is suboptimal therapy. Pyeloplasty, whether open or laparoscopic should be reserved for endoscopic failures.

54. A six-year-old boy has the sudden onset of gross hematuria, urgency, and frequency. Urinalysis shows 5-10 WBC/hpf and gross blood. Urine culture is negative. Ultrasound shows diffuse bladder wall thickening but no hydronephrosis or renal mass. The next step is:

A. observation.

B. antibiotics.
C. VCUG.
D. non contrast CT scan.
E. cystoscopy.
ANSWER=A
This boy has typical signs and symptoms of viral cystitis. Adenovirus is the most common virus although viral cultures are infrequently done in this setting. Supportive therapy is the mainstay of management. An ultrasound should be done to rule-out other serious causes of hematuria. Bladder wall thickening is to be expected in the acute phases of a viral infection. Symptoms usually resolve within two to four weeks. Antimuscarinics can be used when the urgency and frequency is more severe. Ribavirin can be considered in highly symptomatic patients, especially in those that are immunosuppressed. There is no indication for antibiotics. If his symptoms do not resolve after a few weeks, then one can get a VCUG or perform cystoscopy to rule out PUV or other pathology. However, doing this in the acute phase is premature since the clinical suspicion for valves is low. If he had valves, one would have expected symptoms prior to this time. The clinical suspicion for a stone is also low given the ultrasound findings. Thus, getting a CT scan is not indicated especially in light of the unnecessary exposure to radiation which is a significant concern in children.

55. A 45-year-old obese man with untreated sleep apnea develops nocturnal enuresis. He has no daytime incontinence. Physical examination is unremarkable except for mild lower extremity edema. Urinalysis is negative, and his PVR is 30 ml. The most likely etiology of the enuresis is:
A. decreased secretion of ADH.
B. increased secretion of atrial natriuretic peptide.
C. detrusor overactivity.
D. mobilization of lower extremity edema.
E. hypercarbia induced drowsiness.
ANSWER=B
Sleep apnea is a recognized cause of nocturia and secondary, or adult-onset, nocturnal enuresis. It causes nocturnal diuresis by a cascade of events which are precipitated by hypoxia which occurs during the intermittent occlusion that occurs with obstructive sleep apnea. The hypoxia-induced increase in right atrial transmural pressure leads to elevated atrial natriuretic peptide, resulting in increased nocturnal urinary output. Atrial natriuretic peptide secretion is induced by elevated intrathoracic pressures due to diaphragmatic contraction against a closed upper airway.

56. A 54-year-old man develops new onset of renal transplant hydronephrosis secondary to a 2 cm proximal ureteral stricture. Ultrasound reveals normal bilateral atrophic kidneys to be in situ. The next step is:
A. double-J stent placement.
B. chronic nephrostomy drainage.
C. antegrade ureteral balloon dilation.
D. pyeloureterostomy to native ureter.
E. pyelovesicostomy.
ANSWER=D
Ureteral obstruction is difficult to manage in transplant kidneys. Long-term nephrostomy tube drainage increases infectious risks especially in immunocompromised patients and requires frequent tube changes. Double-J stents are difficult to place and replace in a retrograde fashion since the common ureteral reimplantation site for a transplant ureter is on the dome of the bladder. Antegrade balloon dilation of all ureteral strictures has poor long-term success. Open exploration is difficult due to the marked fibrous reactive tissue surrounding transplant kidneys. A pyelovesicostomy will freely reflux and may increase the risk of recurrent infections. Drainage through a native ureter anastomosed to the proximal renal pelvis (transplant kidney) is the best option for long-term success.

57. A 30-year-old man on CIC develops urinary incontinence three years after a spinal cord injury. Urodynamic testing demonstrates detrusor areflexia, and a detrusor LPP of 60 cm H2O at 200 ml. The next step is:
A. tamsulosin.
B. ephedrine.
C. bethanechol.
D. oxybutynin.
E. dantrolene.
ANSWER=D
Detrusor compliance may deteriorate in patients with spinal cord injury and detrusor areflexia. The development of incontinence suggests this occurrence. A detrusor LPP greater than 15 cm H2O indicates that compliance is impaired. In the absence of intervention, renal deterioration may occur. The best treatment is an antimuscarinic agent, such as oxybutynin. Ephedrine would be contraindicated as it may increase sphincter tone and increase detrusor LPP. An alpha-1-blocker may lower the detrusor LPP, but increase the incontinence. Bethanechol would also be contraindicated since it may increase detrusor pressure. Dantrolene is used to treat detrusor external sphincter dyssynergia via relaxation of skeletal muscle.

58. A 37-year-old woman with a suspected urinary fistula undergoes an in-office double dye test. There is orange staining of the upper gauze pad. The middle gauze pad is dry, and the lower gauze pad is slightly stained blue. The most likely diagnosis is:
A. ureterovaginal fistula.
B. vesicovaginal fistula.
C. ureterovaginal and vesicovaginal fistula.
D. ureterovaginal fistula and urethral leakage.
E. vesicovaginal fistula and urethral leakage.
ANSWER=D
The in-office dye test begins with prescribing oral phenazopyridine several days prior to office visit. As expected, this process will turn the urine orange. At time of office visit, the bladder is filled with dilute methylene blue via urethral catheter infusion. Thus, bladder fluid will have blue coloration, and ureteral urine is expected to have orange discoloration. Three gauze pads are placed in the vagina, the upper pad is near the cuff, and the middle pad is within the vagina, usually above the bladder neck. The lower pad is usually below the bladder neck and urethra. In this pattern of staining, orange urine in the upper pad is concerning for the presence of a ureteral source of drainage into the vagina, most commonly a ureterovaginal fistula. Theappearance of blue staining on the lower pad is most consistent with urethral leakage. Thus this patient has results suggestive of a ureterovaginal fistula and urethral leakage. The presence of blue on the upper or middle pad without leakage on the lower pad would suggest a vesicovaginal fistula.

59. The need for operative revision of stomal stenosis in a continent, catheterizable channel is reduced by:
A. increasing size of catheter.
B. increasing frequency of catheterization.
C. steroid injection of stoma.
D. use of a pre-lubricated catheter.
E. leaving a catheter through superficial portion of stoma nightly.
ANSWER=E
The usual first line approach for the problem of cutaneous stenosis of a Monti or Mitrofanoff channel is to leave a catheter through the stoma for some period of time. The concern with leaving a full-time indwelling catheter to "stent" the stoma for several days is that it may plug with mucous and introduce bacteria along its surface into the bladder. Mickelson, et. al., reported use of the "L-stent", a catheter with a knot tied just 1-2 inches from the tip, inserting it up

to the knot at night with taping to hold it in place. This serves to stent only the cutaneous stoma and not enter the bladder itself. Their success with a modest period of nighttime stenting was excellent. None of the other approaches listed have shown particular impact on this problem.

60. A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:

A. radical eschar debridement.
B. split thickness skin grafts.
C. hyperbaric oxygen therapy.
D. remove urethral catheter and insert suprapubic tube.
E. observe for wound granulation.
ANSWER=D

Multiple debridements of necrotic skin followed by skin graft coverage may eventually be needed with burn injuries to the genitalia. Early suprapubic urinary diversion simplifies wound care and prevents complications related to prolonged urethral catheterization. If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. Hyperbaric oxygen therapy has been used to promote overallwound healing however there is no evidence that it prevents urethral complications. Split or full thickness skin grafting is used once granulation tissue is present and all non-viable tissue has been removed.

61. A 32-year-old man underwent a deceased donor kidney transplant six months ago with a donor kidney with two renal arteries. The lower pole renal artery was anastomosed separately to the distal external iliac artery. He now has a creatinine of 2.1 mg/dl and ultrasound shows hydroureteronephrosis of the transplanted kidney. The next step is:

A. CT scan.
B. diuretic renogram.
C. placement of a indwelling urethral catheter.
D. cystoscopy and retrograde stent insertion.
E. percutaneous nephrostomy.
ANSWER=C

The first step necessary in assessing the renal transplant patient with new onset of hydronephrosis is the placement of a urethral catheter and obtaining a cystogram, to assess for the presence of reflux. In the absence of reflux and if urine output is diminished or if the creatinine does not decrease with urethral catheter drainage (drop in creatinine following placement of catheter indicative of bladder dysfunction), assessment for ureteral stricture would be necessary. If the serum creatinine is above 2 mg/dl or twice normal for age, false positive MAG 3 Lasix washout renal scans for obstruction are highly probable due to the decreased renal function. In patients with an elevated creatinine, percutaneous nephrostomy placement is both effective for treatment and can be an excellent way to diagnosis ureteric stenosis. The risks for complications of the ureter in renal transplantation is < 3% overall. The most common complications are those related to the vascular viability of the ureter and result in either urinary leakage or ureteral stenosis. Urinary leakage often occurs early after transplantation but ureteral stenosis can be insidious and late in the course. Risk factors for ureteral complications include advance donor age, delayed graft function, severe graft rejection and kidneys with two or more arteries. Cystoscopy and retrograde pyelography or placement of ureteric stents may be problematic due to the abnormal location of the ureteroneocystostomy following a renal transplant and should be considered only after confirmation that no vesicoureteral reflux is present and following the diagnosis of a ureteral stricture. A CT scan although confirmative for the diagnosis of hydronephrosis does not delineate the etiology for the radiographic finding.

62. A 16 cm intussuscepted ureteral segment is noted in the bladder after a difficult ureteroscopic stone extraction. The next step is:

A. nephrectomy.
B. transuretero-ureterostomy.
C. ureteral reimplantation.
D. percutaneous nephrostomy drainage.
E. primary uretero-ureterostomy.
ANSWER=D

An intussuscepted ureteral segment noted after ureteroscopic stone extraction is a dramatic complication. Retrograde realignment for such a large segment is unrealistic. Percutaneous nephrostomy drainage preserves renal function and minimizes urinary extravasation. Nephrectomy or ileal ureteral replacement may be appropriate actions only after a discussion with the patient and their family. Transureteroureterostomy reconstruction places both kidneys at risk especially with a history of urinary stone disease.

63. Vesicoureteral reflux is suspected on antenatal ultrasound when:

A. there is upper pole hydroureteronephrosis.
B. the bladder is noted to be full on serial ultrasounds.
C. there is bladder wall thickening.
D. the degree of hydronephrosis varies with serial ultrasounds.
E. there is a two-vessel umbilical cord.
ANSWER=D

On antenatal ultrasound, if the fetus has VUR, then the degree of fetal bladder fullness at the time of any particular study will determine how much volume is being refluxed and, thus, how much hydronephrosis is noted. Since bladder fullness differs between studies, the varying degrees of hydronephrosis is suggestive of VUR. A fuller bladder should cause an increase in hydronephrosis. Upper pole hydroureteronephrosis suggests an obstructive etiology; bladder wall thickness and persistent bladder fullness suggests bladder outlet obstruction or several other possibilities. A two-vessel cord is unrelated to the risk of reflux.

64. The metabolism of sildenafil may be inhibited by:

A. a fatty meal.
B. rifampin.
C. ritonavir.
D. warfarin.
E. doxazosin.
ANSWER=C

High fat meals can inhibit the absorption of sildenafil and vardenafil but do not affect the absorption of tadalafil or the metabolism of PDE5 inhibitors. Ketoconazole, itraconazole, andprotease inhibitors such as ritonavir can impair the metabolic breakdown of PDE5 inhibitors by blocking the CYP3A4 pathway. These agents may increase blood levels of inhibitors, requiring a PDE5 dose reduction. Agents such as rifampin may induce CYP3A4, enhancing the breakdown of inhibitors and requiring higher PDE5 doses. Warfarin and doxazosin have no effect on the metabolism of PED5 inhibitors. Doxazosin may exacerbate hypotensive changes with PED5 inhibitors.

65. A 32-year-old man with infertility has an ejaculate volume of 3 ml, sperm count of 13 million/ml, 50% motility, and an elevated serum FSH. Physical examination reveals bilaterally small testes, normal vasa, and no evidence of a varicocele. His 28-year-old wife has a normal evaluation. The most appropriate next step is:

A. intrauterine insemination.
B. testicular biopsy.

C. in vitro fertilization.
D. clomiphene citrate.
E. antisperm antibody testing.
ANSWER=A
The couple is infertile due to idiopathic male factor. Testicular biopsy is unlikely to be helpful in a patient with oligospermia. Any intervention used in this setting is considered empirical. The main choice is between attempts to improve the husband's fertility or assisted reproductive techniques to improve the chances of conception without altering sperm quality. It is controversial whether clomiphene citrate is occasionally effective in men with idiopathic oligospermia but it is definitely not effective in an individual with an elevated serum FSH. This leaves either intrauterine insemination (IUI) or in vitro fertilization (IVF). It is most reasonable to start with IUI in this couple since the wife is under 30 and the husband's total motile sperm count is well above 10 million. IVF would be the first therapeutic option if there were a significant female factor or his sperm count were extremely low. The patient's motility is above the reference value for motility and therefore there is no indication for antisperm antibody testing.

66. An ectopic ureteral insertion into the vagina is the result of the ureteral bud arising or interacting:
A. proximally on the mesonephric duct.
B. distally on the mesonephric duct.
C. on the common excretory duct.
D. with ectopic metanephric blastema.
E. on the paramesonephric duct.
ANSWER=A
The ureteric bud arises off of the mesonephric duct. The segment distal to the ureteric bud is called the common excretory duct. The point of origin of the ureteric bud is the ureteral orifice. If the ureteral bud arises more distally than normal, the ureteral orifice enters the bladder earlier than usual and migrates cranially and laterally and will likely be associated with reflux. If the bud arises more proximally on the duct the orifice ends up medial and caudal. A very proximal origin leads to a persistent position on the mesonephric duct and termination outside the bladder. In the male this is either in the epididymis, vas deferens, seminal vesicles, and prostate. In the female, the mesonephric duct becomes the epoophoron, oophoron, and Gartner's duct. An ectopic ureter draining into these structures ruptures into the fallopian tube, uterus, upper vagina or vestibule.

67. A pelvic examination of a 75-year-old woman two years after prior midurethral synthetic sling reveals extrusion of a small amount of mesh along her anterior vaginal wall. She is continent and denies any other urinary or vaginal complaints. She is not sexually active. Urinalysis is normal. The next step is:
A. observation.
B. removal of extruded mesh.
C. removal of entire midurethral sling.
D. oral estrogen hormone replacement.
E. removal of exposed mesh and simultaneous sling replacement.
ANSWER=A
Intervention is not required for this patient at this time. Removal of the entire midurethral sling is not required for a small exposure of mesh. With partial sling excision, continence is maintained in the majority of patients; therefore, replacement of another sling would not be indicated. Removal of the entire midurethral sling is challenging, unnecessary and would likely lead to recurrent stress urinary incontinence. Transvaginal estrogen is thought to promote vaginal healing and is preferred over oral estrogen therapy due to other potential systemic effects. Extrusions that are larger or symptomatic should be treated. When a midurethral sling is eroded into or involves the urinary tract it should be treated with removal.

68. A 39-year-old woman has dysuria and frequency. Urinalysis shows 30 WBC/hpf and a few cocci. The midstream urine culture shows 103 coagulase negative Staphylococci/ml. The next step is:
A. phenazopyridine.
B. repeat midstream culture.
C. urine culture for mycobacteria.
D. antibiotic therapy.
E. catheterized urine culture.
ANSWER=D
The standard definition of significant bacteriuria for a clean voided urine is > 105 CFU/ml of a uropathogen. This criterion has stood the test of time for screening and epidemiological studies and for entering patients in clinical trials. However there are several important exceptions to its rigid use in clinical practice and one is in patients with a pyuria/dysuria syndrome. In these patients, a lower colony count may represent significant bacteriuria. Certain bacterial species such as coagulase negative Staphylococci grow slowly in urine and significant infections may only have counts of 103 CFU/ml. Since the patient has a symptomatic, culture-proven UTI, treatment with phenazopyridine alone would be inappropriate. Repeat urine culture (midstream or catheterized) is not indicated. Mycobacteria culture is indicated only in sterile pyuria.

69. A one-year-old boy with prune belly syndrome has chronic renal insufficiency. He undergoes abdominoplasty and bilateral orchidopexy and develops oliguria post operatively that does not respond to fluid boluses. Serum electrolytes reveal elevated BUN and creatinine, metabolic acidosis, and hyperkalemia. Sodium polystyrene enemas are given and I.V. sodium bicarbonate is administered. The patient develops abdominal cramping and muscle spasms. This is most likely due to:
A. hypokalemia.
B. hypophosphatemia.
C. hypermagnesemia.
D. hypocalcemia.
E. hyponatremia.
ANSWER=D
This patient has developed acute renal failure (ARF). Children with a history of chronic renal insufficiency secondary to renal dysplasia are at significant risk for ARF after any major surgical procedure. Most cases are reversible. Patients with ARF can develop hyperkalemia, metabolic acidosis, hyperphosphatemia (from decreased renal excretion), and hyponatremia. The hypocalcemia that develops is due to several causes including hyperphosphatemia, decreased intestinal calcium reabsorption, and Vitamin D deficiency. The most important acute reason for the hypocalcemia is the hyperphosphatemia. When correcting the metabolic acidosis, it is important to monitor the ionized calcium level, since this can drop precipitously. Signs and symptoms of hypocalcemia include cramping, tetany, and prolonged QT interval on EKG.

70. A 24-year-old man had a complete T4 spinal cord injury three weeks ago. He is wearing a condom catheter for continuous leakage and examination is significant for suprapubic fullness as well as flaccid muscle paralysis and absent somatic reflexes below the level of injury. The next step is:
A. suprapubic catheter.
B. suprapubic catheter and urodynamics.
C. CIC.
D. CIC and urodynamics.
E. CIC, urodynamics and renal ultrasound.
ANSWER=C
This patient has classic symptoms of spinal shock which usually lasts 6-12 weeks in complete suprasacral spinal cord lesions. Lower urinary tract function with spinal shock is usually a combination of an acontractile and areflexic bladder and a competent bladder neck.

This patient likely has suprapubic fullness due to an elevated residual with leakage secondary to overflow incontinence. This could be managed with either an indwelling catheter or the initiation of regular CIC. As this patient should have normal upper extremity function with this level of injury, and therefore should be able to perform CIC, there is no reason to place a suprapubic catheter. Urodynamic studies are indicated once spinal shock has resolved and bladder function has stabilized. The resolution of spinal shock is often heralded by the return of deep tendon reflexes.

71. During the course of a radical cystectomy, a rectal injury is primarily repaired. Three days postoperatively, the patient becomes septic. Physical examination reveals a tender surgical wound. The adjacent skin is edematous and has a bronze discoloration. Gram strain of the wound aspirate reveals gram-positive, club-shaped organisms. The next steps are surgical drainage, I.V. clindamycin and:

A. penicillin.
B. vancomycin.
C. fluconazole.
D. cefazolin.
E. tetracycline.
ANSWER=A

The findings described are characteristic of Clostridium perfringens wound infection. Clostridial infections should be considered in any patient with a wound infection, especially if there has been an injury to the colon. The organism is an anaerobe with a positive gram stain and a club shape. Clinically, the patient appears toxic and a bronze discoloration of the involved skin is characteristic. Crepitus may be absent. Empirical therapy must cover clostridial infection. Asopposed to clostridium difficile, in cases of suspected C. perfringens myonecrosis or anaerobic cellulitis and necrotizing polymicrobial infection, two drug combination treatment is recommended. I.V. penicillin (2 to 3 million units every 3 hours or 3 to 4 million units every 4 hours) or ampicillin (2 g every 4 hours), plus I.V. clindamycin (0.6 g every 6 to 8 hours) or metronidazole (1 g loading dose followed by 0.5 g every 6 hours), provides coverage of the anaerobic organisms likely to be involved. Vancomycin, cefazolin and tetracycline do not provide effective coverage of anaerobic gram positive species. Fungal wound infection is not suspected with the clinical picture and thus fluconazole is not appropriate.

72. A 64-year-old man undergoes a TURP using glycine irrigation. Vital signs are stable throughout the procedure but at the end of the procedure he is confused and nauseated. The most likely problem is:

A. sepsis.
B. hyperglycemia.
C. dilutional hyponatremia.
D. hemolysis.
E. hypovolemia.
ANSWER=C

The TUR syndrome consists of mental confusion, nausea, vomiting, hypertension, bradycardia and visual disturbance. It is secondary to a dilutional hyponatremia from free water overload. Up to 20 ml/minute are absorbed during a resection. The risk increases with the size of the prostate and the length of the resection. Patients become symptomatic when the serum sodium concentration reaches 125 mEq/l. Ammonium intoxication has been suggested when glycine has been utilized as an irrigant. Alternative irrigants such as sorbitol, glycine and mannitol are isoosmolar and non-hemolytic, whereas water is a cheap irrigant but is hypoosmolar. Sorbitol is an inert sugar and would not lead to hyperglycemia. Sepsis in this scenario would usually be manifested with fever, hypotension and tachycardia. Hypovolemia would result in tachycardia and hypotension.

73. According to the 2009 AUA Guidelines on Surgical Management of Female Stress Urinary Incontinence (SUI), evaluation of the index patient with SUI should include a focused history, physical examination, urinalysis, PVR and:

A. pad test.
B. objective demonstration of SUI.
C. cystoscopy.
D. urodynamics.
E. urodynamics and cystoscopy.
ANSWER=B

According to the 2009 Update for the Guideline on Surgical Management of Female Stress Urinary Incontinence, evaluation of the index patient should include the following components: focused history, focused physical examination, objective demonstration of SUI, assessment of PVR urine volume, urinalysis and urine culture if indicated. Additional diagnostic studies are not required but can be performed as needed and include pad testing, voiding diary, urodynamics, cystoscopy, and imaging.

74. An early manifestation of septic shock is:

A. bradycardia.
B. respiratory alkalosis.
C. high output renal failure.
D. decreased cardiac output.
E. decrease in plasma norepinephrine.
ANSWER=B

Respiratory alkalosis is a very early sign of septic shock and is caused by the initial tachypnea stimulated by the sepsis. As hypoperfusion occurs, metabolic acidosis develops. Tachycardia, oliguria, increased cardiac output, and increased plasma norepinephrine occur in early septic shock.

75. A 58-year-old diabetic man with lupus recently discontinued a two week course of ibuprofen for a shoulder injury. Serum creatinine is elevated from a baseline of 0.9 to 2.6 mg/dl. Urinalysis reveals moderate proteinuria and WBC casts without eosinophiluria. Renal ultrasound demonstrates no hydronephrosis. The next step is:

A. observation.
B. urine culture and antibiotics.
C. prednisone.
D. cyclosporine.
E. percutaneous renal biopsy.
ANSWER=A

Long-term use of NSAIDs such as ibuprofen may result in an acute interstitial nephritis (AIN). Clinically this presents as an acute renal failure with WBC casts. Proteinuria is common. Unlike other types of drug induced AIN; fever, and eosinophilia and eosinophiluria are uncommon. Lupus nephritis is characterized by red cell casts. Antibiotics are not indicated for AIN and culture will be negative. Immunosuppressants, such as steroids and cyclosporine, have no role in the therapy of AIN. Observation is appropriate as discontinuation of the offending agent, in this case, the NSAID, will likely result in resolution of the AIN. Renal biopsy is over aggressive in this patient unless he fails a course of observation.

76. An 86-year-old man with nocturia times three, daytime frequency, urinary urgency, and occasional incontinence is treated with tolterodine. His incontinence worsens. Urinalysis is normal. The next step is:

A. urine culture.
B. PVR.
C. uroflowmetry.
D. videourodynamics.
E. cystoscopy.
ANSWER=B

Transient urinary incontinence occurs in almost one third of ambulatory elderly patients. LUTS in the elderly may be secondary to a number of medical conditions, including diabetes, immobility, congestive heart disease, etc. Antimuscarinic agents may cause or worsen urinary incontinence in elderly patients with poor detrusor contractility. This may present with new or worsened incontinence due to overflow after the initiation of an antimuscarinic agent and can be diagnosed with the non-invasive measurement of a PVR. Urine culture is not indicated in the setting of a normal urinalysis. There is no need at this point to proceed to uroflowmetry, urodynamics or cystoscopy but these may be useful in further evaluation.

77. A 75-year-old woman with lower limb phlebitis has marked bilateral hydroureteronephrosis on a CT scan performed to screen for an intra-abdominal malignancy. She has had marked uterine prolapse (procidentia) for several years. Stress incontinence of urine is controlled by wearing a pad changed once daily. Residual urine is 100 ml. Serum creatinine is 3.2 mg/dl. Urine culture grows Klebsiella 105 col/ml. The next step in management should be antibiotic therapy and:

A. hysterectomy.
B. vaginal pessary.
C. anterior vaginal repair.
D. anterior vesicourethropexy.
E. bilateral ureteral stents.
ANSWER=B

Complete uterine prolapse (procidentia) can cause bilateral ureteral obstruction. Correction of the prolapse causes relief of the ureteral obstruction. In this case, a vaginal pessary to prevent prolapse is the best initial management to allow improvement in renal function and uninterrupted anticoagulant treatment of her phlebitis. Later hysterectomy may be indicated. Neither anterior vesicourethropexy nor anterior vaginal repair will correct uterine prolapse.Cystoscopic manipulation of the upper tracts through an infected bladder will, all too often, lead to pyelonephritis. All patients with advanced uterine prolapse should have upper tract imaging by ultrasound or pyelography. Lesser degrees of uterine procidentia carry little risk of hydronephrosis (2% in one study).

78. A five-year-old boy has had two prior failed attempts to repair his penoscrotal hypospadias. His urethral meatus is widely patent and is located at the penoscrotal junction. The distal urethral plate is fibrotic and scarred, and is associated with a 15 degree ventral curvature. He has minimal excess preputial and penile shaft skin. The next step is:

A. incised plate urethroplasty.
B. buccal mucosa onlay graft and corporal body grafting.
C. buccal mucosa onlay graft and dorsal corporal plication.
D. resection of urethral plate and tubed buccal mucosa graft urethroplasty.
E. resection of urethral plate and first stage buccal mucosa graft to urethral bed.
ANSWER=E

Patients that have had numerous previous attempts at hypospadias repair often have a scarred and poorly vascularized urethral bed. In these situations, the best chance for success is resection of the scarred bed with a two-stage buccal mucosa urethroplasty. The minimal degree of residual ventral curvature will likely not be functionally significant and will improve with resection of the fibrotic urethral plate. Single-stage tubed buccal grafts have a higher degree a failure than a two-stage technique.

79. A 34-year-old woman with multiple sclerosis continues to have significant urinary incontinence despite maximal antimuscarinics. Two weeks after intradetrusor injection of 200 units of onabotulinumtoxinA, she complains of worsening frequency, urgency and urinary incontinence. The next step is:

A. PVR.
B. cystoscopy.
C. urodynamics.
D. empiric antibiotic therapy.
E. reinject 100 units of onabotulinumtoxinA.
ANSWER=A

This patient is likely experiencing worsening of symptoms due to incomplete bladder emptying. It appears that approximately 25% of patients with a neurogenic bladder who are not catheterizing at baseline will require CIC after injection of 200 units of onabotulinumtoxinA. UTI could cause her worsening symptoms; however, this would be more likely if the patient isalready performing catheterization. Urodynamics and cystoscopy would not be helpful in the immediate postoperative period. If a patient requires reinjection this should be done at least two to three months after the initial injection. Recent studies suggest that the 200 U dose is adequate and a higher dose is not beneficial.

80. Aldosterone production is primarily:

A. a function of the zona fasciculata.
B. increased by atrial natriuretic factor.
C. decreased in renal hypoperfusion.
D. mediated by angiotensin II.
E. increased with sodium loading.
ANSWER=D

Aldosterone levels are primarily regulated by angiotensin II through the renin-angiotensinaldosterone system and directly by serum potassium levels. Increased sodium decreases aldosterone. Aldosterone is produced in the zona glomerulosa and not under direct control of ACTH. Renal hypoperfusion will increase aldosterone production.

81. A 14-year-old boy has a painless mass above the right testis. Radical orchiectomy is performed. Pathology reveals a completely resected paratesticular rhabdomyosarcoma. His abdominal CT scan is normal. The next step is:

A. repeat CT scan in three months.
B. adjuvant chemotherapy with doxorubicin and alkylating agents.
C. retroperitoneal radiation.
D. ipsilateral RPLND.
E. bilateral RPLND.
ANSWER=E

Priapism lasting longer than 36 hours recalcitrant to multiple attempts at irrigation as well as shunting procedures, is best treated with immediate penile prosthesis implantation. While immediate implantation carries a greater risk of infection and erosion, it preserves penile length and makes prosthesis implantation easier. In this severe case of ischemic priapism, oral therapies are not indicated and he has already failed a proximal shunting procedure. A Tshunt is another form of a distal corporal-glanular shunt. A repeat proximal shunt would not be unreasonable in this individual, but would have a low chance of success and will likely be associated with significant penile shortening and fibrosis.

82. A 46-year-old-man has a sustained erection for 72 hours. His erection has persisted despite irrigation with dilute phenylephrine solution through multiple glanular puncturesand a subsequent corporal-cavernosal shunt. One day later, he continues to have a rigid penis. The best treatment is:

A. oral terbutaline.
B. oral bicalutamide.
C. corporal-glanular shunt.
D. bilateral T-shunt.
E. immediate prosthesis implantation.
ANSWER=E

Priapism lasting longer than 36 hours recalcitrant to multiple attempts at irrigation as well as shunting procedures, is best treated with immediate penile prosthesis implantation. While immediate implantation carries a greater risk of infection and erosion, it preserves penile length and makes prosthesis implantation easier. In this severe case of ischemic priapism, oral therapies are not indicated and he has already failed a proximal shunting procedure. A Tshunt is another form of a distal corporal-glanular shunt. A repeat proximal shunt would not be unreasonable in this individual, but would have a low chance of success and will likely be associated with significant penile shortening and fibrosis.

83. A 68-year-old woman has nocturia x3, persistent suprapubic pain, urgency and daytime frequency after her third BCG instillation for recurrent stage Ta bladder cancer. A urinalysis reveals 5-10 RBC and 10-20 WBC/hpf. A urine culture is negative. The next step is:

A. space remaining treatments two weeks apart.
B. ciprofloxacin.
C. decrease weekly intravesical dose of BCG by 50 percent.
D. isoniazid therapy with BCG treatments.
E. oxybutynin.
ANSWER=E

BCG cystitis is a common side effect of BCG therapy. A possible bacterial infection should also always be considered. Quinolone antibiotics are not indicated with a negative urine culture and may have a negative effect on BCG therapy as it is partially tuberculocidal. Similarly, antitubercular medications may abrogate the effectiveness of BCG and add the risk of hepatotoxicity. A decrease in dose intensity may hamper therapeutic efficacy. The patient's symptoms are mild to moderate and are best treated symptomatically with an anti-spasmodic agent during the course of therapy.

84. Prenatal ultrasound in a 22-week male fetus shows bilateral hydroureteronephrosis. The most important parameter(s) predictive of postnatal renal outcome is(are):

A. the anterior-posterior diameter of the renal pelvis.
B. renal parenchymal echogenicity.
C. the degree of parenchymal thinning.
D. the presence of a thick walled bladder and a dilated proximal urethra.
E. the presence of oligohydramnios and renal cortical cysts.
ANSWER=E

The most reliable indicators of postnatal renal function are the presence or absence of oligohydramnios and renal cortical cysts. Severe oligohydramnios and the presence of renal cortical cysts predict a poor prognosis for postnatal renal function. The anterior-posterior (AP) diameter of the renal pelvis is somewhat predictive of the likelihood of postnatal surgical intervention, but not predictive of postnatal renal function. An enlarged, thick-walled bladder with a dilated proximal urethra indicates bladder outlet obstruction but does not indicate the outcome of renal function. Similar to the AP diameter, the degree of parenchymal thinning is helpful in appreciating the severity of blockage and the likelihood for the need to intervene. Increased renal parenchymal echogenicity may, at times, be associated with impaired renal development and function, but in the absence of cortical cysts is unreliable.

85. A man with a BMI of 35 (normal 18.5-24.9) complains of left flank and hip pain after undergoing laparoscopic right nephrectomy in the lateral position. The surgery was challenging and required use of the kidney rest for an extended period of time. Postoperatively, he appears to have brownish-red urine. Urine dip stick is 3+ for blood but no RBC os seen microscopically. The next step is:

A. observation.
B. nephrology consultation.
C. I.V. hydration and alkalinization.
D. radiographic imaging of the hip.
E. initiation of patient-controlled anesthesia.
ANSWER=C

This patient likely has rhabdomyolysis. The diagnosis is made by measurement of serum creatine phosphokinase (CPK) or a spot test for urine myoglobin. Risk factors for this at the time of laparoscopic surgery include a BMI of 25 or greater, male gender, prolonged operative time, full-table flexion and prolonged use of the kidney rest. Prevention is essential and includes minimizing the use of the kidney rest and intra-operative hypotension. Brownish-red urine suggestive of the hematuria may be noted in patients with rhabdomyolysis, however microscopic assessment of the urine will not show RBCs. Treatment at this time should be hydration and alkalinization to minimize the risk of renal failure. Renal function should be monitored. The need for transient dialysis occurs in a minority of patients so nephrologyconsultation may not be necessary. Radiographs of the hip are not indicated as it is unlikely that an injury to the bony pelvis would occur during a nephrectomy leading to these symptoms.

86. A 50-year-old man has a large right renal mass with tumor thrombus extending into the atrium. Under hypothermia and circulatory arrest, he undergoes nephrectomy with removal of the tumor thrombus. The most frequent significant complication is:

A. hepatic dysfunction.
B. pulmonary air embolus.
C. central nervous system deficit.
D. coagulopathy and hemorrhage.
E. tumor emboli.
ANSWER=D

Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage yet the most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction. Tumor emboli can occur but are relatively uncommon. Utilization of cardiopulmonary bypass limits the possibility of embolic events.

87. A patient taking chronic thiazide diuretics undergoes nephrectomy. After surgery, serum K is 3.0 mEq/l despite adequate fluid replacement. She is normotensive and alert. Attempts to restore her serum K level are hampered by:

A. adrenal insufficiency.
B. glomerular hyperfiltration.
C. normal magnesium levels.
D. intracellular shifting of potassium.
E. tubular dysfunction.
ANSWER=D

There is no evidence of adrenal insufficiency. Low magnesium levels can contribute to hypokalemia. There is no evidence that thiazides permanently damage the kidneys ability to handle potassium. The glomerulus does not play an important role in potassium homeostasis. When administering potassium for hypokalemia the rise in serum potassium is blunted because about 80% of the potassium enters the intracellular space.

88. Patients with von-Hippel Lindau disease most frequently have:

A. renal angiomyolipoma.
B. cafe-au-lait spots.
C. glioblastomas.
D. thyroid carcinoma.
E. retinal angiomas.
ANSWER=E

Patients with von-Hippel Lindau disease may have hemangioblastomas of the cerebellum, renal cell carcinomas, and cystadenomas of the epididymis. The diagnosis, however, can often be made most easily with inspection of the retina with identification of angiomas. Renal angiomyolipomas are commonly seen in tuberous sclerosis complex. Thyroid carcinoma can be seen more commonly in patients with multiple endocrine neoplasia syndrome. Cafe-au-lait spots are pathognomonic of neurofibromatosis.

89. An 11-year-old boy with a history of a PUV develops hypertension and incontinence. Over the past six months, his creatinine has increased from 1.2 to 2.8 mg/dl and his BUN from 28 to 45 mg/dl. Ultrasound shows increased hydroureteronephrosis and a large PVR. The next step is:

A. initiate transplant evaluation.
B. urethral catheter drainage.
C. alpha-blocker therapy.
D. antimuscarinics.
E. desmopressin.
ANSWER=B

This boy is developing progressive renal insufficiency due to multiple factors including increased urine output from tubular injury and bladder decompensation. In this patient with an acute elevation in creatinine and hypertension, temporary decompression of the bladder to assess potential recovery of renal function should be performed. Videourodynamics to assess bladder function would be the next step in guiding appropriate therapy. Treatment options include CIC with nighttime bladder drainage, with or without antimuscarinics. Alpha-blocker therapy promotes relaxation of the internal urethral sphincter, but has not been consistently successful in these patients. Desmopressin may be indicated in the future following nephrology consultation.

90. In the management of advanced bladder cancer the substitution of carboplatin for cisplatin in a multidrug regimen has been shown to:

A. not affect outcome.
B. increase renal toxicity.
C. improve survival.
D. decrease response rate.
E. increase duration of therapy.
ANSWER=D

In a meta-analysis of four randomized trials in 286 patients, Galsky and colleagues have concluded that the substitution of carboplatin for cisplatin resulted in a statistically significant (three fold decrease) in the probability of achieving a complete response and a significant decrease in the overall response rate. No significant effect on survival could be analyzed and in general the renal safety profile is improved with the use of carboplatin. The duration of therapy is not affected by the substitution of carboplatin.

91. A 52-year-old man with renal insufficiency has decreased libido and progressive erectile dysfunction. He has a spot serum prolactin level of 220 ng/ml (normal 5-20 ng/ml). The next step is:

A. measure serum testosterone.
B. measure FSH and LH.
C. brain CT.
D. nephrology consult.
E. ophthalmology consult.
ANSWER=E

Elevated prolactin levels can cause infertility and sexual dysfunction by decreasing the production of testosterone. Mildly elevated levels (< 50ng/ml) can be seen with stress and renal insufficiency. Persistently high levels of serum prolactin are suggestive of a pituitary adenoma and need to be evaluated with a careful measurement of visual fields and an MRI of the pituitary. This patient has levels consistent with a pituitary adenoma and serum testosterone, FSH and LH will not help make the diagnosis. While he may benefit from the care of a nephrologist, it will not direct the diagnosis and treatment of a pituitary adenoma. CT is not specific enough for an evaluation of the pituitary and the best choice is an ophthalmology consult for careful visual field testing and an MRI of the pituitary.

92. A 75-year-old man has severe bleeding from radiation cystitis requiring transfusion. Cystogram reveals no reflux. Previous therapeutic measures have failed including fulguration, clot evacuation, and irrigations with silver nitrate and 1% alum. The next step in management is:

A. ileal loop urinary diversion.
B. instillation of 10% formalin.
C. instillation of 5% formaldehyde.
D. instillation of 5% formalin.
E. internal iliac artery embolization.
ANSWER=D

Formaldehyde is a 37% solution of formaldehyde gas dissolved in water and should not be used intravesically. Formalin solution is made up of 1-10% formaldehyde diluted with normal saline and has been given in bladder instillations to control hemorrhage from advanced bladder tumors or radiation cystitis. Formalin solution is exceedingly irritating to the bladder and, thus, requires general or regional anesthesia. Because a 10% formalin solution may cause fibrosis and obstruction of the ureteral orifices, formalin instillation should begin with a 1% solution and be repeated with a 5% and then a 10% solution, if necessary. Many people begin with a 5% solution if other measures (i.e., silver nitrate and 1% alum) have failed. A cystogram should be performed before instillation to rule out vesicoureteral reflux. If reflux is present, Fogarty catheters should be passed up both ureters, and the patient should be tilted into the head-up position to protect the upper tracts from the toxic effects of formalin. Selective internal iliac arterial embolization is more invasive and should be reserved for patients that fail formalin instillation.

93. A 56-year-old woman with recurrent, symptomatic stress urinary incontinence desires treatment. She had a prior midurethral synthetic sling ten years prior that worked well until recently. Examination reveals loss of urine with cough and minimal urethral hypermobility. Urinalysis is normal. The next best step is:

A. urethral bulking agent.
B. transobturator transvaginal tape sling.
C. retropubic midurethral sling.
D. retropubic bladder neck suspension.
E. artificial urinary sphincter.
ANSWER=C

A repeat midurethral synthetic sling is an appropriate option for a patient with recurrent stress urinary incontinence. Cure rates for redo patients appear to be higher for the retropubic compared to the transobturator approach. This is likely due to a higher rate of intrinsic sphincter dysfunction in patients requiring repeat surgery. Urethral bulking agents would be less likely to lead to a long-term resolution of this patient's symptoms. Placement of an autologous fascial sling would also be a viable option for this patient. A retropubic bladder neck suspension is an inferior procedure to a retropubic transvaginal tape or to an autologous sling. Placement of an artificial urinary sphincter would not be indicated for this patient.

94. A ten-year-old girl with a history of bilateral high grade VUR was treated with bilateral cross-trigonal ureteral reimplantation surgery at two years of age. She is evaluated for persistent gross hematuria following treatment of a UTI.

Cystoscopy and bladder massresection demonstrates nephrogenic adenomas. The next step is:
A. reassurance.
B. antibiotic suppression.
C. intravesical BCG.
D. laser ablation.
E. partial cystectomy.
ANSWER=B
Nephrogenic adenoma is a rare benign metaplastic response of urothelium to tissue injury. Most nephrogenic adenomas occur after an inciting event such as surgery, trauma, infection, and immunosuppression or in response to calculi. The adenomas will develop months to years after a precipitating event and will usually occur within the bladder but may occur on any urothelial surface including transposed bladder mucosal grafts. The main presentation is hematuria and irritative voiding symptoms, but patients may also present with obstructive symptoms or be diagnosed incidentally. The endoscopic appearance is that of a papillary exophytic lesion resembling a low-grade urothelial carcinoma. On histological evaluation, nephrogenic adenoma appear as subepithelial tubular structures similar to Henle's loops. Although at one time these lesions were considered to be premalignant in nature, recent studies have been unable to establish a relationship between nephrogenic adenomas and the subsequent development of malignancy. Even though there is no evidence of malignant potential, transurethral resection is recommended together with long-term antibiotic prophylaxis for at least one year after resection. Prolonged antibiotic therapy is suggested due to the frequent finding of UTI as an associated or causative factor. It is controversial regarding whether patients with nephrogenic adenomas should undergo surveillance cystoscopy. Although there is high incidence of recurrence (30-40%) it is feared that repeated cystoscopic evaluations could further traumatize the bladder urothelium leading to an increased incidence of recurrence. Since nephrogenic adenomas are now known to be a benign condition most authorities recommend cystoscopy, only if recurrent gross hematuria and/or irritative or obstructive voiding symptoms develop.

95. A 43-year-old paraplegic man with a neurogenic bladder has gross hematuria. A cystogram shows bilateral grade 2 VUR and a 1 cm papillary filling defect in the midright ureter. Cystoscopy shows patulous ureteral orifices, but no other abnormalities. Complete ureteroscopic resection of the tumor reveals a low grade non-invasive urothelial carcinoma. The serum creatinine is 1.0 mg/dl. The best management is:
A. surveillance with ureteroscopy.
B. nephroureterectomy.
C. partial ureterectomy.
D. ureterectomy and ileal ureter.
E. intravesical BCG.
ANSWER=A
This patient is an ideal candidate for endourologic management of an upper tract tumor. The patulous ureteral orifices will allow easy passage of the ureteroscope for surveillance. The surgical options listed are unnecessary for a completely resected tumor. Intravesical BCG is not indicated for a first-time low grade tumor.

96. An eight-month-old uncircumcised boy is treated for a febrile UTI. Ultrasound shows a right multicystic dysplastic kidney and a normal left kidney. VCUG shows left grade 3 VUR. DMSA scan shows non-function of the right kidney and a left upper pole cortical defect. The next step is prophylactic antibiotics and:
A. observation.
B. circumcision.
C. left antireflux surgery.
D. right nephrectomy.
E. left antireflux surgery and right nephrectomy.
ANSWER=A
Up to 25% of children with multicystic dysplastic kidneys will have contralateral vesicoureteral reflux. The scan suggests pyelonephritis in the left upper pole. There is no need to remove
the right multicystic dysplastic kidney at this time. Infection in a multicystic dysplastic kidney is extremely rare and not seen in this scenario. In this age child, there is still a good chance the reflux will resolve spontaneously. Prophylactic antibiotics and observation is the best treatment. In the absence of breakthrough infections, a circumcision is not needed.

97. A 23-year-old man had a successful kidney transplant two weeks ago. He has significant pain below his incision without any leg weakness. The most likely diagnosis is:
A. postoperative pain.
B. addictive behavior.
C. lateral cutaneous nerve injury.
D. genitofemoral nerve entrapment.
E. femoral nerve damage.
ANSWER=D
Nerve injury can be seen after transplantation or a psoas hitch. The genitofemoral nerve arises from the L1-2 ventral primary rami and at the level of L3-4, the nerve pierces the anterior surface of the psoas major muscle and descends past the ureter. It then splits into the genitaland femoral branches near the inguinal ligament. The surgeon must not mistake this nerve for a lymphatic vessel as it sometimes crosses the external iliac artery. This nerve supplies the cremaster muscle, spermatic cord, scrotum, and thigh in males. Incisional pain can be common after kidney transplantation but after 2 weeks, postoperative pain usually subsides. Although pain to very light touch can suggests addictive behavior, the entrapped genitofemoral nerve can indeed present in this manner. More often, the pain may be worse with internal or external rotation of the hip and prolonged walking. Lateral cutaneous nerve injury presents with anterior and lateral thigh paraesthesia symptoms of burning and tingling that increase with standing, walking, or hip extension. Patients with femoral nerve damage complain of difficulty in walking and sometimes knee buckling depending on the severity of the nerve injury.

98. A 55-year-old woman undergoes right radical nephrectomy and inferior vena cava thrombectomy for RCC. There is no evidence of metastatic disease. The prognostic factor most predictive of cancer-free survival is:
A. tumor stage.
B. tumor grade.
C. size of caval thrombus.
D. tumor size.
E. mutant p53 suppressor gene.
ANSWER=A
Important prognostic factors for RCC include specific clinical signs or symptoms such as anemia, hematuria and weight loss; tumor-related factors such as grade and histology; and various laboratory findings such as hypercalcemia. Although an integrative approach utilizing nomograms and risk tables combining a variety of factors have proven to be powerful analyses tools, the local tumor stage remains the most important single prognostic factor for RCC. The cephalad extent of tumor thrombus has been associated with outcome, since a thrombus above the diaphragm increases the stage. However, the absolute size of thrombus does not correlate to outcome. Presence or absence of p53 mutation is not prognostic in RCC.

99. A newborn boy with bilateral hydronephrosis has PUV, left sided grade 5 VUR, and a large bladder diverticulum on VCUG.

After successful resection of valves, left hydronephrosis persists. The next step is prophylactic antibiotics and:
A. observation.
B. vesicostomy.
C. left cutaneous ureterostomy.
D. left anti-reflux surgery.
E. left nephroureterectomy and bladder diverticulectomy.
ANSWER=A
Hydronephrosis is often persistent after resection of a PUV, and does not necessarily suggest failure of therapy. The hydronephrosis may also be due to persistent left-sided VUR immediately following successful valve resection. Both hydronephrosis and VUR may resolve in approximately 50% of boys following valve resection. This boy should be given time along with prophylactic antibiotics and re-evaluation in 12-18 months. In the absence of persistent urinary infection, anti-reflux surgery or removal of the left system and bladder diverticulum are not indicated, and might result in loss of system compliance. Assessment of renal function using either a MAG-3 with Lasix or DMSA renal scan would be necessary before considering removal of any kidney. Urinary diversion at the bladder or supravesical level is not indicated in this boy.

100. A 55-year-old man with metastatic RCC to the brain is confused and has one short generalized seizure. His serum sodium is 110 mEq/l. The next step is:
A. total fluid restriction to 2 l/day.
B. I.V. normal saline at 1 ml/kg/hr.
C. I.V. hypertonic saline at 1 ml/kg/hr.
D. lithium 1200 mg daily.
E. demeclocycline 600 mg daily.
ANSWER=C
SIADH is caused primarily by release of ADH from brain infections, neoplasms, drugs, or surgery. The treatment of symptomatic hyponatremia from SIADH is fluid restriction and replenishment of sodium. Fluid restriction alone is not adequate in the face of a seizure. The indications for hypertonic saline should be those patients who have neurologic sequelae as noted in this scenario. Correction should raise the sodium no more than 2 mEq/l/hr or 25 mEq/l/48 hours to minimize the risk of central pontine myelinolysis. Lithium and demeclocycline are antagonists of ADH and used for more chronic conditions without concurrent neurologic symptoms. Correction of the sodium deficit is the appropriate next step.

101. An eight-year-old boy was treated for lipomyelomeningocele at birth. He is on CIC every four hours and oxybutynin 5 mg BID. He develops new incontinence. The next step is:
A. urodynamics.
B. MRI scan of spine.
C. increase CIC frequency.
D. increase antimuscarinics.
E. start imipramine.
ANSWER=A
This patient should undergo urodynamic evaluation to assess the etiology of the incontinence. MRI scan of the spine would be indicated if the urodynamic study shows new abnormal findings, or new onset of lower extremity weakness or other alterations on neurologic exam. Implementing any additional treatment at this time without identifying the cause for the incontinence would be premature.

102. A two-day-old, 4.5 kg girl has gross hematuria. A right flank mass is palpable. CBC shows thrombocytopenia. The most likely diagnosis is:
A. renal vein thrombosis.
B. renal artery thrombosis.
C. Henoch-Schönlein purpura.
D. hemolytic uremic syndrome.
E. congenital mesoblastic nephroma.
ANSWER=A
This is a large infant, which may be associated with maternal diabetes. That history and the abdominal mass make the diagnosis of renal vein thrombosis most likely. The thrombocytopenia is characteristic. Renal artery thrombosis is usually associated with an indwelling umbilical artery catheter, and can result in a mass and hematuria. Congenital mesoblastic nephroma is the most common solid renal mass in an infant but is not usually associated with hematuria or thrombocytopenia. Henoch-Schönlein purpura is a systemic vasculitis that commonly presents at four to six years of age. The common features are palpable purpuric rash, abdominal pain with gastrointestinal bleeding, and arthritis. Hemolytic uremic syndrome is defined by the triad of microangiopathic hemolytic anemia, thrombocytopenia and acute renal failure that typically occurs after enterocolitis with E. coli (O157:H7).

103. A 68-year-old man with ESRD has been on dialysis for ten years. He has a malleable penile prosthesis and his caregivers notice a firm, black, necrotic lesion on his glans. He has similar lesions on his fingers and toes. The best treatment is:
A. observation and support.
B. oral antibiotics for six weeks.
C. I.V. antibiotics for six weeks.
D. biopsy of lesion.
E. removal of prosthesis.
ANSWER=A
This patient has metastatic calciphylaxis of the vessels (dry gangrene) in his digits and glans. This is seen in patients with ESRD and is associated with a high mortality rate. Most ofthese patients will die of their renal disease within six months. The characteristic lesions show microscopic calcification in the arterioles and capillaries which leads to dry necrosis. Antibiotics are not helpful and biopsies can be harmful as these lesions will not heal well due to their poor blood supply. Removal of the prosthesis would only be indicated if there was subsequent erosion or penile infection. This patient should continue with observation, support and wound care as needed.

104. A 23-year-old man develops chylous ascites after RPLND. He is initially managed with a medium chain triglyceride diet, and for the last two weeks, with TPN. He still requires periodic paracentesis four weeks postoperatively. The next step is:
A. continue current management.
B. add somatostatin.
C. laparoscopic ligation of the source.
D. open surgical ligation of the source.
E. peritoneovenous shunt.
ANSWER=B
After making the patient NPO and starting TPN, the next step is the administration of subcutaneous or I.V. somatostatin. Recent reports have shown a beneficial effect leading to drying up of lymphatic fistulas in this setting. Somatostatin works by decreasing the absorption of fats, inhibiting gastric, intestinal, and pancreatic secretions, and inhibiting motor activity of the intestines. The net effect is reduced flow within the major lymphatic channels, and reduced leakage from the fistula site. Somatostatin is thus recommended prior to proceeding with more invasive measures.

105. A 37-year-old woman with a continent cutaneous urinary diversion becomes febrile and develops mental status changes and marked hepatic dysfunction. Previously, her hepatic function had been normal. In addition to prompt urinary drainage and systemic antibiotics, the next step is:
A. lactulose.
B. Vitamin B12.
C. sodium bicarbonate.

D. nicotinic acid.
E. thiamine and folic acid.
ANSWER=A
Urinary ammonium excreted by the kidneys is reabsorbed by the intestinal segment, and then returned to the liver via the portal circulation. The liver metabolizes ammonium to urea via the ornithine cycle. The liver usually adapts to the excess ammonia in the portal circulationwithout difficulty and rapidly metabolizes it. In the setting of hepatic dysfunction, the hepatic reserve for ammonium metabolism may be exceeded, resulting in the complication of an ammoniagenic coma. The syndrome, however, also has been described in patients with normal hepatic function. Systemic bacteremia, with endotoxin production, inhibits hepatic function and may precipitate this clinical entity. Urinary tract infections with urea-splitting organisms may also overload the ability of the liver to clear the ammonia. If this syndrome occurs in a patient suspected of having near normal hepatic function, systemic bacteremia or urinary obstruction should be suspected. Prompt urinary drainage with treatment of the offending urinary pathogens along with systemic antibiotics and the administration of oral neomycin or lactulose to reduce absorption of ammonia in the gastrointestinal tract are the key components to patient management. There is no indication for the use of Vitamin B12, sodium bicarbonate, nicotinic acid, thiamine and folic acid in this clinical setting.

106. Persistent or recurrent difficulty to allow vaginal entry of a penis, finger, or other object, despite the woman's desire to participate is consistent with the diagnosis of:
A. vaginismus.
B. persistent sexual arousal disorder.
C. dyspareunia.
D. sexual aversion disorder.
E. genital arousal disorder.
ANSWER=A
Sexual dysfunction in women is complicated in that many of the disorders coexist and isolated disorders are uncommon. Definitions frequently change or are not universally agreed upon. In the "Revised Definitions for Female Sexual Dysfunction from the Second International Consensus of Sexual Medicine," vaginismus is the persistent difficulty to allow entry of an object into the vagina despite the desire of the woman to participate. Dyspareunia on the other hand is persistent or recurrent pain with attempted penile-vaginal intercourse. Persistent sexual arousal disorder, sexual aversion disorder and objective arousal disorder are not primarily associated with the difficulty to insert an object into the vagina. Genital arousal disorder consists of complaints of impaired genital sexual arousal, which may include minimal vulvar swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing genitalia. However, subjective sexual excitement still occurs with nongenital sexual stimuli. In persistent sexual arousal disorder, the patient has spontaneous, intrusive, and unwanted genital arousal in the absence of sexual interest and desire. Arousal is unrelieved by orgasms and the feelings of arousal persist for hours or days. Extreme anxiety or disgust at the anticipation of or attempt at any sexual activity is sexual aversion disorder.

107. A 59-year-old man undergoes TRUS biopsy with a PSA of 4.5 ng/ml and a normal DRE. The biopsy reveals BPH and nine months later his PSA has risen to 5 ng/ml and he undergoes a PCA3 urine test. The PCA3 score is 99 (low risk < 35). The next step is:
A. 5-alpha reductase inhibitor.
B. one month of ciprofloxacin and repeat PCA3.
C. free to total PSA ratio.
D. prostate MRI.
E. repeat TRUS biopsy.
ANSWER=E
The PCA3 urine test is designed to detect the mRNA signal from the DD3 gene which is specific to prostate cancer. This test has now been validated in multiple prospective studies the largest of which was the REDUCE clinical trial. In this study PCA3 scores were measured in 1,072 subjects with a negative prior TRUS biopsy and the results were more closely correlated to the results of the second biopsy than PSA alone or free to total PSA ratio. The higher the level of the PCA3 score the higher the risk of a positive biopsy and a score of under 35 is considered low risk. Therefore a repeat prostate biopsy is warranted in this patient. PCA3 is now FDA-approved for the assessment of patients with a prior negative prostate biopsy. PCA3 is not affected by infection, prostate volume, or the use of 5-alpha reductase inhibitors.

108. An 11-year-old boy with spina bifida is scheduled for bladder augmentation and implantation of an artificial urinary sphincter. Infection or erosion are more common if sphincter implantation is performed:
A. prior to bladder augmentation.
B. following bladder augmentation.
C. simultaneous with augmentation.
D. with sigmoid enterocystoplasty.
E. in an area of previous bladder neck surgery.
ANSWER=E
The best treatment for a patient with low bladder compliance, small capacity, and sphincteric incontinence is the combined use of bladder augmentation and increased bladder outlet resistance. When an artificial urinary sphincter is used in conjunction with augmentation of the bladder, the timing of the two procedures does not appear to affect the outcome. More important factors are good bowel preparation, intravenous antibiotics, sterility of the urine, and meticulous surgical technique to avoid entering the previously augmented bladder during sphincter implantation which may predispose to infection and sphincter erosion. Patients who have undergone prior incontinence procedures are also at increased risk for sphincter erosion.

109. The production of sex hormone binding globulin (SHBG) is increased by:
A. hypothyroidism.
B. hyperthyroidism.
C. insulin.
D. nephrotic syndrome.
E. progestins.
ANSWER=B
Sexual dysfunction and infertility can on rare occasions be caused by thyroid dysfunction. Hyperthyroidism/thyrotoxicosis can elevate the serum levels of sex hormone binding globulin (SHBG) and subsequently lower circulating free testosterone. Hypothyroidism can have the opposite effect (lower SHBG) as can insulin administration, glucocorticoid excess, hepatic disease and nephrotic syndrome. Estrogen can increase SHBG production and progestins can lower it.

110. The primary goal of bowel detubularization at the time of neobladder construction is to:
A. recreate the shape of the native bladder.
B. provide more efficient neobladder emptying.
C. reduce lumen pressure.
D. reduce vesicoureteral reflux.
E. reduce urinary contact time.
ANSWER=C
Early studies of orthotopic reconstruction by Camey and others demonstrated that while continence can be achieved utilizing a tubularized segment of bowel as a urinary reservoir, upper tract deterioration inevitably occurred due to high reservoir pressure. In

part, the pressure in such segments is due to the continued organized bowel peristalsis, and the reduced diameter of the lumen. The observation that reservoir pressure is lowered by increasing the internal radius of the reservoir is based upon Lapace's law that mural tension is equivalent to pressure times radius cubed. While the increased radius achieved by detubularization and folding of the bowel also results in increased reservoir capacity, the primary goal of detubularization is reduction in pressure through reduction of organized peristalsis and wall tension. Although this may indirectly lead to reduced ureteral reflux, it is not the primary reason for bowel detubularization.

111. Berry aneurysms of the circle of Willis are most frequently associated with:
A. renal aneurysms.
B. autosomal dominant polycystic kidneys.
C. autosomal recessive polycystic kidneys.
D. horseshoe kidney.
E. multicystic dysplastic kidneys.
ANSWER=B
Ten percent of patients with autosomal dominant polycystic kidney disease have berry aneurysms, and subarachnoid hemorrhage can be a lethal consequence. The high incidence of hypertension with autosomal polycystic kidney disease may contribute to the frequency of bleeding from the berry aneurysm. There is no association between renal aneurysms and berry aneurysms. Multicystic dysplastic kidneys have a slight association with hypertension but no extrarenal manifestations otherwise. Horseshoe kidney has a higher incidence of UPJ obstruction and Wilms' tumor, but is not associated with berry aneurysms. Autosomal recessive polycystic kidney disease is associated with liver failure, but has no known association with berry aneurysms.

112. A 52-year-old man in good health has a three year history of dorsal penile curvature. His angulation is 80 degrees and has been stable without pain for over a year. He has good erections with sildenafil but cannot penetrate due to the curvature. The best treatment is:
A. oral colchicine.
B. topical verapamil.
C. corporal plication.
D. plaque incision and graft.
E. modeling and placement of inflatable penile prosthesis.
ANSWER=D
This patient has demonstrated a stable plaque in Peyronie's disease and is ready for surgical correction. Medical therapy with colchicine may be useful in the acute phase and will decrease penile pain, however it has little to no proven benefit over placebo in preventing curvature and is associated with significant GI side effects. It would not be effective in this clinical situation. Topical verapamil has not been adequately evaluated and would most likely not be effective with this degree of curvature. Plication would require multiple plicating sutures and would severely shorten the penis with this degree of curvature. Plication procedures are usually not recommended if the penile curvature is > 60 degrees due to significant shortening of the penis. As he gets excellent erections, a prosthesis is not yet indicated.

113. The risk factor associated with the highest chance for developing a secondary malignancy and/or cardiovascular disease in patients treated for testis cancer is:
A. surveillance imaging.
B. smoking.
C. BEP chemotherapy.
D. subdiaphragmatic and mediastinal radiation therapy.
E. cisplatin, vinblastine, bleomycin (PVB) chemotherapy.
ANSWER=D
In a multivariate analysis, combined subdiaphragmatic and mediastinal radiation has a Hazard's Ratio (HR) of 3.7 for secondary malignancy and/or cardiovascular disease; chemotherapy also increased the risk (HR 1.9), but there is no difference between the chemotherapy regimens. Smoking increased risk 1.7 fold. There is no increased risk of secondary malignancy with surgery. Surveillance imaging is a risk factor for developing secondary malignancy, but the magnitude of the risk is much lower than radiation therapy.

114. The ductuli efferentes of the testis enter the:
A. seminiferous tubules.
B. caput epididymis.
C. cauda epididymis.
D. vas deferens.
E. rete testis.
ANSWER=B
Seminiferous tubules, organized into 200-300 conical tubules, drain into 20-30 tubuli recti which enter the rete testis, a network of ducts in the testicular mediastinum. At the upper end of the mediastinum, the ductuli efferentes emerge from the testis to enter the head (caput) of the epididymis. The cauda epididymis is the most distal portion of this organ from the testis.

115. A 42-year-old man sustains a high velocity pelvic gunshot wound with no obvious ureteral injury at exploration. Two days later during a second look operation for bleeding, a minor distal ureteral contusion is identified. Intravenous indigo carmine does not reveal a urine leak. The next step is:
A. observation.
B. cystoscopy and stent placement.
C. percutaneous nephrostomy.
D. ureteroneocystostomy.
E. debridement and ureteroureterostomy.
ANSWER=B
The patient has a ureteral contusion to the distal ureter following a gunshot wound. There is no evidence of devitalized tissue or a urine leak. Cystoscopy and ureteral stent placement is the best option for a minor contusion. Ureteral reimplant is the best treatment option if a largecontusion or devitalized tissue is identified. Ureteroureterostomy of the distal ureter is never indicated. Percutaneous nephrostomy would divert the urine yet would not stent the ureter which may lead to stricture formation. Observation is not indicated as the ureter may become obstructed from the contusion.

116. A 56-year-old woman three years after a radical cystectomy and continent cutaneous diversion has abdominal pain over the pouch and explosive leakage of urine despite regular catheterization. The next step is:
A. placement of indwelling urinary catheter.
B. pouchoscopy.
C. urine culture and empiric antibiotic therapy.
D. CT pouch-o-gram.
E. surgical revision of the catheterizable stoma.
ANSWER=C
The clinical presentation of abdominal pain in the area of a continent cutaneous diversion and explosive urinary leakage from the stoma (as opposed to dribbling leakage) is consistent with pouchitis. While asymptomatic bacteruria is common in patients who have undergone continent cutaneous diversion and does not usually require any treatment, symptomatic pouchitis should be treated. The explosive nature of the incontinence is related to hypercontractility of the bowel in the face of infection. Short courses of antibiotics (less than ten days) are not usually successful to clear the infection, presumably due the larger amounts of mucus and sediment seen in intestinal pouches. CT cystogram of the pouch would be useful if

rupture of the pouch was suspected. However, clinical symptoms in this setting are not consistent with that diagnosis. Placement of an indwelling urinary catheter, while not harmful in this setting, would have no effect on the pouch infection. Surgical revision of the stoma is unwarranted when incontinence is likely due to infection.

117. A nine-year-old girl is struck in the abdomen and right flank by an automobile. She is alert and her vital signs are stable. She has moderate guarding in her right upper quadrant and decreased bowel sounds. Her hematocrit is 33%, and she has bloodtinged urine. A CT scan demonstrates a 4 cm hepatic laceration and hematoma and a 3cm laceration of the right kidney with minimal contrast extravasation. The next step is:

A. observation.
B. cystoscopy and ureteral stent placement.
C. renal and hepatic arteriography.
D. percutaneous drain placement.
E. abdominal exploration.

ANSWER=A

In children who sustain blunt abdominal trauma, CT scan can define injuries to the abdominal viscera quite well. Conservative treatment in the hemodynamically stable patient with follow-up CT scan, if needed, will result in reducing the rate of abdominal exploration in the patient with stable visceral injuries to less than 10%. Cystoscopy and ureteral stent placement in this patient with a grade 3 renal laceration is not indicated, unless clinical symptoms, such as a prolonged ileus or sepsis should develop. Renal and hepatic arteriography would be indicated if there is decreasing hematocrit with increasing size of hematoma, and may allow for selective embolization of the bleeding vessel(s), potentially eliminating the need for exploration. Surgical exploration with repair of lacerations is not indicated in this stable patient and in some cases may result in disruption of hematoma, bleeding and unnecessary nephrectomy.

118. A 25-year-old woman reports eight afebrile UTIs in the past year. The factor most likely to increase her risk of UTI is:

A. tampon use.
B. parity.
C. douche use.
D. daily bicycle riding.
E. spermicide use.

ANSWER=E

Studies of risk factors for recurrent UTI demonstrate that spermicide use increases urinary tract infections by decreasing normal vaginal flora and decreasing vaginal pH. Several studies have demonstrated the other four choices are not common risk factors. Toileting after intercourse, increasing fluid intake and wiping front to back have not been shown to decrease occurrence of UTIs in adult women.

119. A 45-year-old woman undergoes a left adrenalectomy for pheochromocytoma. Three months later, she still has sustained hypertension. The next step is:

A. plasma renin activity.
B. plasma free metanephrine levels.
C. 24-hour urinary cortisol levels.
D. abdominal MRI scan.
E. MIBG scan.

ANSWER=B

Repeat metabolic testing should be performed after adrenalectomy to document normalization of chromaffin cell function. One of the pitfalls of diagnosing and treating pheochromocytoma is failure to recognize multiple lesions at the time of treatment. It has been estimated that between 10-20% of pheochromocytomas are malignant or multifocal. In a patient who undergoes surgical resection of an adrenal pheochromocytoma but still has persistent unexplained hypertension two to three months after the procedure, residual tumor somewhere else in the body must be considered. While MIBG scan may be helpful in identifying the location of this lesion, the patient should initially have plasma free metanephrine levels measured. If this is normal MIBG scan is not indicated. Similarly, MRI should not be ordered until pheochromocytoma is ruled in or out using less invasive diagnostic testing. Clinical suspicion of primary hyperaldosteronism or Cushing's syndrome is low in this case, so plasma renin activity and 24-hour urinary cortisol levels will not be helpful.

120. If the inferior mesenteric artery is ligated, the artery that maintains blood supply to the rectum is:

A. superior mesenteric.
B. ileocolic.
C. middle sacral.
D. external iliac.
E. hypogastric.

ANSWER=E

Blood supply to the rectum arises proximally from the superior rectal (hemorrhoidal) artery, inferior mesenteric artery, and distally from the middle (hemorrhoidal) and inferior rectal arteries. When the inferior mesenteric artery is ligated, blood supply to the rectum is maintained by the middle hemorrhoidal artery which is a branch of the posterior division of the hypogastric artery and the inferior rectal artery which is a branch of the internal pudendal artery.

121. A 44-year-old runner experiences the gradual onset of left groin pain. Examination reveals normal genitalia and tenderness over the symphysis pubis. His urinalysis is clear. The most likely cause of his pain is:

A. vasitis.
B. femoral hernia.
C. pubic bone stress fracture.
D. osteitis pubis.
E. osteomyelitis of the pubis.

ANSWER=D

The patient presents with the symptoms of osteitis pubis in the athlete. It is estimated that osteitis pubis accounts for 6-14% of groin pain in athletes and is thought to be a form of overuse injury. The onset of unilateral or bilateral groin pain is gradual and may beaccompanied by pain in the lower abdomen, hip, thigh, or testicle. Acutely painful infectious vasitis without associated epididymitis is exceedingly rare. Femoral hernia may cause groin pain but is not typically associated with pain of the symphysis pubis. Pubic stress fractures do occur but are less common than osteitis pubis in athletes. Osteomyelitis of the pubis has been reported in athletes and must be considered in the differential diagnosis. However, it is much less common than osteitis pubis. Pelvic MRI scan is used to distinguish between osteomyelitis and osteitis pubis. Treatment for osteitis pubis is anti-inflammatory medications and rest.

122. On prostate ultrasound, calcifications within the prostate known as corpora amylacea can be visualized between which zones:

A. transitional and anterior.
B. central and peripheral.
C. transitional and peripheral.
D. central and transitional.
E. central and anterior.

ANSWER=C

The various zones of the prostate are not always easily distinguished on ultrasound. In glands with large adenoma, the transitional zone can often be distinguished from the anterior zone and the peripheral zone because of its more heterogeneous appearance. In addition, some patients will develop calcifications along the surgical capsule between the transitional zone and the peripheral zone. These calcifications are known as corpora amylacea and can be used on ultrasound to define the boundaries of these two zones.

123. A six-week-old boy has a large, palpable, right abdominal mass. Ultrasonography demonstrates a fluid-filled mass with multiple cystic lucencies. A renal scan shows no uptake of the right kidney and a normal left kidney. He has moderate respiratory distress and an elevated right hemidiaphragm. The most appropriate therapy is:

A. right nephrectomy.
B. percutaneous aspiration of cysts.
C. cystoscopy and right retrograde pyelogram.
D. right pyeloplasty.
E. observation.
ANSWER=A

The diagnostic findings on ultrasound and renal scan are sufficient to confirm multicystic dysplastic kidney. The absolute indications for removal are few, including hypertension, solid mass, or significant respiratory or gastrointestinal compromise. Aspiration is an option in a premature neonate or a toxic child, but at six weeks of age, nephrectomy is preferred. The lackof renal function eliminates a salvageable UPJ obstruction. Therefore cystoscopy and retrograde pyelogram is unnecessary, and pyeloplasty is not an option.

124. Randomized clinical trials have demonstrated decreased rates of struvite stone growth with the use of:

A. urinary acidification.
B. suppressive antibiotics.
C. acetohydroxamic acid.
D. a low protein diet.
E. citric acid glucono-delta-lactone magnesium carbonate.
ANSWER=C

Acetohydroxamic acid (AHA, Lithostat®) has been demonstrated in randomized clinical trials to decrease the rate of stone growth in patients with struvite calculi. It is important to note that AHA did not impact the rate of stone recurrence. Urinary acidification has been tested in vitro utilizing L-methionine, but has not been studied in humans. Though recurrence rates are higher (62%) in patients with infected urine compared to sterile urine (12%), the use of suppressive antibiotics to decrease stone growth has not been studied in a clinical trial. A low protein diet, although effective in feline studies, has not been shown to make a difference in human studies. Citric acid glucono-delta-lactone magnesium carbonate (Renacidin®) has been utilized for dissolution therapy of residual fragments.

125. A 51-year-old woman develops bilateral hydronephrosis from benign uretero-enteric strictures, two years after undergoing a radical cystectomy with ileal conduit urinary diversion. The most successful treatment is:

A. antegrade bilateral endoscopic balloon dilatation.
B. antegrade bilateral endoscopic laser incision.
C. retrograde bilateral balloon dilatation.
D. retrograde bilateral endoscopic laser incision.
E. open bilateral surgical revision.
ANSWER=E

Although short-term success rates (within the first year post treatment) are high with endoscopic treatments, ranging from >60% to 100%, the long term success rates are quite low regardless of approach or endoscopic treatment. The most definitive treatment is open surgical repair.

126. An acutely ill 50-year-old man is in the emergency room. He is unable to give a history. Physical exam reveals severe dehydration. Serum Na is 125 mEq/l, and urinary Na is 8mEq/l (> 20 mEq/l normal spot urine). The most likely cause of his hyponatremia is:

A. vomiting.
B. diuretic excess.
C. renal disease.
D. congestive heart failure.
E. Addison's disease.
ANSWER=A

Congestive heart failure is associated with fluid retention. Therefore, a patient with heart failure would not be dehydrated. Renal disease, Addison's disease, and diuretic excess cause hyponatremia by increased urinary excretion of sodium. Of the choices listed, only vomiting would result in hypovolemia, hyponatremia, and a very low concentration of sodium in the urine. Patients who experience excessive vomiting lose fluid and salt. Therefore, they become dehydrated and their kidneys reabsorb almost all of the filtered sodium. Thus, the urinary sodium concentration is low.

127. When performing SWL using sedation, one should anticipate a need for deeper anesthesia if the patient:

A. is a male.
B. is older than 50 years.
C. has a stone projecting over a rib.
D. has never had a prior SWL.
E. has a ureteral calculus.
ANSWER=C

There is a greater need for supplemental anesthesia during SWL under sedation if the patient is female or young, has a history of anxiety, depression or prior SWL, or has a rib-projected calculus. Pain during SWL has been shown to be less with ureteral calculi when compared to renal calculi.

128. A 66-year-old man has a PSA of 4.1 ng/ml and is diagnosed with a Gleason sum 6 prostate cancer involving less than 5% of a single core from a 12-core biopsy. He elects active surveillance. One year later, his PSA is 4.5 ng/ml. The next step is:

A. recheck PSA in three months.
B. recheck PSA in six months.
C. 12-core TRUS-guided prostate biopsy.
D. 24-core TRUS-guided saturation biopsy.
E. MRI scan.
ANSWER=C

Active surveillance is an appropriate management strategy for selected men with localized prostate cancer. Patients who elect this approach should have favorable risk tumors, usually consisting of low-volume Gleason sum 6 or less disease. Active surveillance protocols are characterized by close monitoring of PSA kinetics and serial biopsy. Klotz et al from Toronto have suggested that PSAs be measured quarterly for the first two years after diagnosis and then twice annually after that, assuming the PSA is stable. A PSA doubling time of less than three years is considered to be an indication for intervention. They have recommended a 10- 12 core biopsy at one year after original diagnosis and then every three to five years after that until age 80. If any Gleason sum 7 or higher disease is noted, this is considered to be an indication for intervention. In this case, the patient is one year removed from his initial diagnosis and a follow-up biopsy is indicated. Reassessment of PSA in three or six months is inappropriate if repeat biopsy is not performed. Saturation biopsy is not indicated in this setting. MRI can be useful in the follow-up for patients, but is not a critical element of active surveillance protocols.

129. A six-week-old boy was born at 27 weeks gestation. His postnatal course has been complicated by respiratory distress, bronchopulmonary dysplasia, and a patent ductus arteriosus. He has required long-term diuretic therapy. A KUB reveals calcifications in the mid and upper abdominal regions consistent with bilateral renal calculi. The most likely mechanism for the formation of the stones is:

A. hypercalciuria.
B. hyperuricosuria.

C. obstructive uropathy.
D. Type I RTA.
E. Type II RTA.
ANSWER=A
Renal calculi occur in very low birth weight pre-term infants with a history of severe ventilatory problems and bronchopulmonary dysplasia. Many of these infants require long-term treatment with diuretic agents to control heart failure. The diuretic agent used most often is furosemide, which increases the rate of urinary calcium excretion up to ten times normal. Chronic hypercalciuria from furosemide therapy has been shown to result in nephrocalcinosis and calculus formation. Loss of calcium from chronic administration of furosemide may lead to secondary hyperparathyroidism and bone changes. Treatment includes switching from furosemide to thiazides. Other etiologies of stone formation do not occur with increased frequency in premature infants requiring diuretic therapy

130. A 25-year-old man undergoes excision and primary anastomosis for a 2 cm bulbarurethral stricture. Postoperatively the patient experiences normal erectile function, but difficulty with antegrade ejaculation. The structure most likely injured is the:
A. bulbospongiosus.
B. transverse perineum.
C. bulbocavernosus muscle.
D. corpus cavernosum.
E. corpus spongiosum.
ANSWER=C
The bulbocavernosus muscle is most responsible for antegrade ejaculation through rhythmic contractions that compress the bulb to expel semen from the urethra. Significant injury or damage to this structure is thought to cause ejaculatory dysfunction. The corpus spongiosum pressurizes and constricts the urethra during ejaculation. The bulbospongiosus, and transverse perineum do not contribute to ejaculation. Injury to the corpus cavernosum could result in erectile dysfunction.

131. A 64-year-old woman undergoes left laparoscopic adrenalectomy for a non-functional 5.5 cm adrenal mass. Three pathologic criteria suggestive of the diagnosis of carcinoma include:
A. a mitotic rate > 5/hpf, absence of clear cytoplasm, and sinusoidal invasion.
B. atypical mitoses, lack of necrosis, and venous invasion.
C. focused growth pattern, high nuclear grade, and most cells have clear cytoplasm.
D. capsular exclusion, sinusoidal exclusion, and atypical mitoses.
E. mitotic rate < 5/hpf, diffuse growth pattern, and capsular invasion.
ANSWER=A
Distinguishing between adrenal adenoma and carcinoma can be difficult, and large-sized adrenal lesions do not always biologically behave as carcinomas. The Weiss criteria, which includes: high mitotic rate (> 5/hpf), atypical mitoses, venous invasion, high nuclear grade (Fuhrman 3-4), absence of cells with clear cytoplasm (< 25% of cells), a diffuse growth pattern (more than one third of tumor), necrosis, sinusoidal invasion, and capsular invasion are often used to distinguish between benign and malignant potential. Three or more of these features are needed for the diagnosis of carcinoma.

132. A four-year-old boy fell from a second story window. On examination, his vital signs are stable, but he has right flank and upper quadrant abdominal tenderness and fullness. He does not have peritoneal signs. Urinalysis is normal. The next step is:
A. observation.
B. abdominal paracentesis.
C. abdominal and renal ultrasound.
D. cystogram.
E. CT urogram.
ANSWER=E
This boy has suffered a rapid deceleration injury and this mechanism of injury warrants evaluation with imaging. A pedicle injury or complete avulsion of the UPJ are potential injuries. These can both occur without hematuria. Hence, observation would be inappropriate. An abdominal tap for blood would not diagnose a renal injury. An ultrasound would likely not be diagnostic. A cystogram in a trauma patient is only indicated in the presence of gross hematuria or pelvic fracture. CT scan is diagnostic and more likely to identify other potential abdominal injuries.

133. A 60-year-old man who underwent left total hip replacement one year ago is about to undergo SWL of a 1 cm right renal pelvic stone. Appropriate antimicrobial prophylaxis is:
A. none.
B. oral ciprofloxacin.
C. oral trimethoprim-sulfamethoxazole.
D. I.V. ceftriaxone.
E. I.V. vancomycin.
ANSWER=B
This patient underwent prosthetic joint replacement less than two years prior to a stone manipulation procedure - SWL. According to the AUA Antimicrobial Prophylaxis Best Policy Statement, the antimicrobial prophylaxis should be either single dose oral fluoroquinolone or intravenous ampicillin-gentamicin combination.

134. A 54-year-old man with metastatic clear cell RCC is currently receiving sunitinib. During therapy, he should have monitoring of his serum:
A. thyroid stimulating hormone and T4.
B. testosterone.
C. cholesterol.
D. cortisol.
E. transaminases.
ANSWER=A
Hypothyroidism has been reported in 36% to 46% of patients who took sunitinib in prospective studies. A higher incidence (53% to 85%) has been reported in studies containing both retrospective and prospective data. The mean time to onset of hypothyroidism after initiation ofsunitinib therapy ranged from 12 to 50 weeks. The risk of development of hypothyroidism appears to increase with the increasing duration of sunitinib therapy, and the condition is likely reversible once therapy has been discontinued. Baseline thyroid function tests should be performed before the initiation of sunitinib treatment. Because hypothyroidism can develop early in the course of therapy, thyroid function tests should be monitored frequently throughout the duration of treatment. Possible mechanisms for thyroid dysfunction include impaired thyroid hormone synthesis, a destructive thyroiditis preceding the development of hypothyroidism, and increased thyroid hormone clearance. If hypothyroidism is identified, levothyroxine therapy should be promptly initiated. Sunitinib does not affect testosterone, cholesterol, cortisol or liver function.

135. A seven-year-old girl has urgency, frequency, and daytime urinary incontinence. She is wet every day, requiring clothing changes twice daily. Physical exam and urinalysis are normal. She is placed on oxybutynin 5 mg bid and timed voiding. She returns two weeks later and reports no change in the daytime urinary incontinence. The next step is:
A. MRI scan of the lumbosacral spine.
B. add imipramine.
C. videourodynamics.
D. voiding diary.

E. urethral dilation.
ANSWER=D
Daytime urinary incontinence occurs in 5% of seven-year-old children. In most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature. Urethral dilation is not indicated for the treatment of daytime urinary incontinence. Some authors have suggested that an occult tethered cord is responsible for persistent daytime urinary incontinence. However, imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation.

136. A 50-year-old woman has irritative, obstructive voiding symptoms, and urge incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H2O, a silent external sphincter, and minimal opening of the bladder neck during voiding. PVR is 150 ml. Examination reveals no cystocele. Cystoscopy is normal. The next step is:
A. antimuscarinic therapy.
B. biofeedback.
C. urethral dilation.
D. alpha-blocker therapy.
E. transurethral incision of bladder neck.
ANSWER=D
This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy. The urodynamic test showing a high pressure void of 45 cm H2O coupled with increased PVR is most consistent with bladder outlet obstruction. There are four common causes for anatomic outlet obstruction in a woman, a cystocele (bladder prolapse), a prior bladder neck sling, external striated sphincter dyssynergia, and bladder neck obstruction. Another cause of bladder outlet obstruction is an increased tone of the striated muscle pelvic floor (including external urethral sphincter). Given that this patient has not had previous anti-incontinence surgery and that the external sphincter is silent and the bladder neck minimally opens during voiding, the level of obstruction is at the bladder neck. Antimuscarinic therapy is contraindicated in patients with increased PVR. Biofeedback is useful in patients with pelvic floor spasticity, which this patient does not have. Urethral dilation has no effect on the bladder neck. A trial of medical therapy with an alpha-blocker is indicated. If not successful in relieving symptoms and/or decreasing PVR, incision of bladder neck is indicated.

137. A 55-year-old woman underwent cystectomy and urinary diversion three years ago. Her serum electrolytes are: Na 140 mEq/l, K 3.4 mEq/l, Cl 140 mEq/l, CO2 15 mEq/l. Her urinary diversion is most likely a(n):
A. ileal conduit.
B. jejunal conduit.
C. ileocolic pouch.
D. cutaneous ureterostomy.
E. ureterosigmoidostomy.
ANSWER=C
Metabolic complications may result from interposition of intestine in the urinary tract. These generally result from altered urinary solute reabsorption by the intestine. This patient has a hyperchloremic metabolic acidosis with associated mild hypokalemia. This is typical of diversion options that utilize ileum and colon. The mechanism is due to the ionized transport of ammonium. The exchange of the weak acid, NH4, for a proton is coupled with the exchange of bicarbonate for chloride. Ammonium chloride is absorbed across the intestinal lumen into the blood in exchange for carbonic acid (i.e., CO2 and water). This is most likely to occur when urine is in prolonged contact with the bowel or if a long bowel segment is used. Electrolytedisorders resulting from jejunal interposition (particularly proximal segments) in the urinary tract include hyponatremia, hypochloremia, hyperkalemia, azotemia, and acidosis. When stomach is used, a hypochloremic, hypokalemic metabolic alkalosis may ensue. Patients undergoing ureterosigmoidostomy may also experience metabolic acidosis, but this is generally associated with a profound hypokalemia.

138. A 16-month-old boy is treated for dehydration. He has had no diarrhea or vomiting. He has been drinking excessively over the past several months. The serum sodium is 152 mEq/l. The urine specific gravity is 1.003 and the urine osmolality is 500 mOsm/kg. He is treated with parenteral fluids. The next step is:
A. head CT scan.
B. renal ultrasound.
C. overnight fluid restriction.
D. desmopressin (DDAVP).
E. salt-restricted diet.
ANSWER=C
This clinical scenario suggests diabetes insipidus. Infants should undergo overnight fluid restriction in a hospital setting. Body weight and vital signs are monitored until three percent of body weight is lost or the urine osmolality is > 600 mOsm/kg. If this does not produce a concentrated urine, fluid is restricted on another day and desmopressin is administered. If the renal response to desmopressin is normal, central DI (head CT scan) should be investigated. Salt restriction is not helpful in patients with diabetes insipidus as the primary defect involves free water handling. Renal ultrasound yields no useful information for acute management in this scenario.

139. Food with high potential renal acid load (PRAL) includes:
A. milk.
B. cheese.
C. yogurt.
D. fruit.
E. vegetables.
ANSWER=B
Low urinary pH predisposes to uric acid and calcium oxalate stones. Dietary acid load correlates with increased risk for stone formation. While cheese has one of the highest potential renal acid load (PRAL), milk and yogurt are less acidic and convey only a slight PRAL. The only foods with a net negative PRAL (alkaline load) are fruits and vegetables and should be encouraged in patients with stone disease. While dairy intake is encouraged todecrease the risk of enteric hyperoxaluria, cheese should be de-emphasized as the primary source.

140. A 68-year-old diabetic man has a 1 cm left proximal ureteral non-invasive, high grade urothelial carcinoma. His serum creatinine is 0.9 mg/dl. Abdominal CT scan is otherwise normal. The next step is:
A. ureteroscopic tumor ablation, stent placement, and intravesical BCG instillation.
B. percutaneous resection and antegrade BCG.
C. left partial ureterectomy.
D. left ureterectomy with Boari flap.
E. left radical nephroureterectomy.
ANSWER=E
Standard therapy for patients with upper tract urothelial carcinoma involving the proximal ureter is nephroureterectomy. Endoscopic treatment of patients with upper tract urothelial carcinoma is generally recommended in those patients with a solitary kidney, bilateral disease, renal dysfunction, or significant intercurrent illness

that precludes a major abdominal procedure. Endoscopic management may also be appropriate in selected patients with small, low-grade lesions in the presence of a normal contralateral kidney. However, most series suggest that recurrence is likely even with frequent reinspection and that progression to invasive disease occurs in a significant number of patients, depending on the stage and grade of the initial tumor. Open ureteral resection risks tumor spillage as well as recurrence. This patient has a normal contralateral right kidney. A recent large, multi-institutional examination of nephrouterectomy and ipsilateral lymph node dissection did not reveal any survival advantage for patients treated with node dissection with earlier stage upper tract malignancy as is the case with this patient. However, in patients with T2-T4 primary tumors, pathologic N0 patients did have a longer cancer-specific survival than pathologic Nx patients.

141. A one-day-old girl with spina bifida undergoes back closure and one week later has placement of a ventriculoperitoneal shunt. Following catheter removal, she voids with a moderate residual. Credé maneuver is started. Eight hours later, she develops abdominal distension and has minimal urine output. The bladder is catheterized for 3 cc. The next step is:

A. fluid bolus.
B. plain film of the abdomen.
C. cystogram.
D. abdominal/pelvic CT scan.
E. laparotomy.

ANSWER=C

Forceful expression of the over-distended bladder in the neonate, cystoscopy, inguinal hernia repair, and umbilical vessel catheterization are the most common causes of iatrogenic injuries to a child's bladder and may on rare occasions in association with VUR result in forniceal rupture. Although the Credé maneuver is used less commonly, it can be employed in infants who do not empty their bladders completely. However, the Credé voiding is contraindicated in children with a reactive external sphincter and should not be initiated in children with spinal bifida until they have been assessed with urodynamics. The Credé maneuver stimulates a reflux response in the external sphincter that increases urethral resistance, thereby increasing the pressure needed to expel urine from the bladder. Bladder rupture has occurred and VCUG will be diagnostic in most cases. Fluid bolus is unnecessary because there is no reason to suspect volume depletion and may delay diagnosis. Although plain film of the abdomen and CT scan without delay imaging may be suggestive of ascites, they are not diagnostic. CT cystogram is acceptable but results in excessive radiation exposure. Laparotomy is not indicated until a diagnosis is made.

142. Performance sports drinks may increase urinary:

A. sodium.
B. citrate.
C. calcium.
D. uric acid.
E. oxalate.

ANSWER=B

Performance sports drinks may increase urinary citrate and pH; lending a protective effect against urinary lithogenicity. However, these drinks have a high fructose and total carbohydrate content, so they should not be recommended as the primary means of hydration for stone formers. Though the sodium content may be high in these drinks, they do not lead to hypernatruria. Sports drinks have no effect on urinary calcium, oxalate, and uric acid.

143. A 55-year-old asymptomatic man with a serum PSA of 5.0 ng/ml has a normal DRE. TRUS is normal and prostate biopsy reveals Gleason 3+3 adenocarcinoma in two biopsy cores from the left base and two biopsy cores from the right apex. The remaining biopsies show benign prostate tissue. According to the 2010 AJCC TNM classification, the clinical T stage is:

A. cT1b.
B. cT1c.
C. cT2a.
D. cT2b.
E. cT2c.

ANSWER=B

Clinical staging is determined by DRE and TRUS, and is not influenced by biopsy location information. This is a common clinical mistake by practicing urologists. The correct clinical stage is cT1c since it is a PSA diagnosed lesion with a normal physical examination and a normal ultrasound. If he had a small nodule on physical examination or consistently present on ultrasound (or other imaging) he would be cT2a. If the nodule was bilateral his clinical stage would be cT2c. If he has a radical prostatectomy, his most likely pathologic stage will be pT2c since his disease is bilateral on biopsy.

144. A ten-day-old boy with a transverse colostomy performed for a high imperforate anus has a serum Cl of 115 mEq/l, Na of 145 mEq/l, K of 4.5 mEq/l, and CO2 of 17 mEq/l. The most likely explanation for these findings is:

A. sepsis.
B. renal dysplasia.
C. severe hydronephrosis.
D. neurogenic bladder dysfunction.
E. electrolyte absorption from large bowel.

ANSWER=E

Genitourinary anomalies associated with an imperforate anus are common. The most common GU anomalies are; vesicoureteral reflux found in 40%, renal agenesis 25%, renal ectopy in 25%, rectourethral or rectal vaginal fistula in 20-30%, neurogenic bladder in 15- 25%, and a tethered spinal cord in 2-8%. The latter three, rectourethral fistula, neurogenic bladder, and tethered spinal cord are more frequently found in patients with a high or supra levator imperforate anus. When a rectourethral fistula exists, urine can flow into the colon leading to electrolyte resorption and recurrent UTIs even following placement of a diverting colostomy. If the electrolyte dysfunction is severe, consideration for a vesicostomy may be necessary to correct the acidosis. Intermittent catheterization in children with an active urethral rectal fistula is problematic, with the fistula acting as a false channel.

145. A 35-year-old man with azoospermia and normal genetic testing desires a biological child. Testosterone is 275 ng/dl, LH is 28 IU/l and FSH is 15 IU/l. Both testes are 3 cm in length and soft. The next step is:

A. clomiphene citrate.
B. hCG.
C. scrotal ultrasound.
D. cranial MRI scan.
E. microsurgical testicular sperm extraction.

ANSWER=E

With FSH greater than 7.6 IU/l and testis axis less than 4.6 cm, the probability of nonobstructive azoospermia is 89%. Neither clomiphene citrate nor hCG is effective in a patient
with highly elevated LH, as clomiphene acts to increase LH secretion and hCG is an LH surrogate. Scrotal ultrasound would not reveal more than that identified on physical examination. As the pituitary is responding appropriately to low serum testosterone, MRI is not indicated. The only chance of a biological child for this patient with non-obstructive azoospermia would be testicular sperm extraction for intracytoplasmic sperm injection.

146. A 63-year-old woman with metastatic clear cell RCC and a poor performance status has a serum calcium of 11 mg/dl and a hemoglobin of 8 g/dl. The most appropriate treatment is:

A. interferon.
B. bevacizumab.
C. sunitinib.
D. sorafenib.
E. temsirolimus.
ANSWER=E

Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase. This is a component of intracellular signaling pathways involved in growth/proliferation of cells. The medication suppresses angiogenesis and is given as a weekly I.V. infusion. Patients with three or more poor risk factors respond better to mTOR inhibitors than other currently used medications. Risk factors include: serum LDH > 1.5 times upper limit of normal, hemoglobin below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of RCC to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs. This patient is considered poor risk and patients who received this regimen were 27% more likely to survive when compared to patients receiving interferon alpha alone. This medication is FDA-approved for advanced RCC. In addition bevacizumab, sunitinib and sorafenib have not been proven to have a survival benefit in this high risk subset of patients. Interferon has not demonstrated a consistent survival advantage in the management of metastatic RCC.

147. A vascular pedicle of the omentum is preferentially based on which artery when using an omental flap for repair of a vesicovaginal fistula:

A. right gastroepiploic.
B. left gastroepiploic.
C. superior mesenteric.
D. gastric.
E. splenic.
ANSWER=A

An omental flap should be preferentially based on the right gastroepiploic artery. The pedicle is mobilized off the stomach from the left. This will result in a well-vascularized and sufficiently long flap based on the right gastroepiploic. The right gastroepiploic is a larger vessel than the left, and its origin is somewhat caudal as compared to the left allowing a shorter course into the deep pelvis.

148. The indication for sperm viability testing is:

A. sperm density < 5 million sperm per ml.
B. sperm motility < 5%.
C. Kallmann syndrome.
D. Klinefelter syndrome.
E. presence of anti-sperm antibodies.
ANSWER=B

Flagellar defects result in motilities of less than 5% - 10%. In these samples most of the nonmotile sperm are viable. Most cases of ultrastructural flagellar defects are associated with normal sperm densities. Kallmann syndrome is associated with hypogonadotropic hypogonadism and resultant azoospermia not motility defects. Klinefelter syndrome is associated with azoospermia, not motility defects. Antisperm antibodies may result in low motility but the non-motile sperm are non-viable.

149. A 76-year-old asymptomatic man has castrate-resistant prostate cancer. Bone scan is normal but CT scan of the pelvis demonstrates two new, enlarged pelvic lymph nodes. The next treatment is:

A. sunitinib.
B. zoledronic acid.
C. denosumab.
D. cabazitaxel.
E. sipuleucel-T.
ANSWER=E

This patient has asymptomatic castrate-resistant prostate cancer. The potential next steps are docetaxel chemotherapy or immune therapy with sipuleucel-T. Both are FDA-approved in this clinical situation. Sipuleucel-T is an active cellular immunotherapy that is a type of therapeuticcancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colonystimulating factor (an immune-cell activator). In men with asymptomatic or minimally symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival benefit was demonstrated compared to placebo. This patient has asymptomatic castrate-resistant prostate cancer with soft-tissue disease. Sunitinib is a tyrosine kinase inhibitor and although FDA-approved for kidney cancer, it has not been approved by the FDA for men with prostate cancer. Zoledronic acid is an I.V. bisphosphonate indicated for patients with metastatic castrate-resistant prostate cancer with bony sites of disease. It has been demonstrated to decrease pain as well as skeletal-related events. No survival advantage has been demonstrated. Although it has been studied for men on long term androgen deprivation therapy, this patient has been on therapy for only six months. Denosumab is a RANK-ligand inhibitor and also decreases skeletal-related events and helps to prevent skeletal-related events associated with osteoporosis. Cabazitaxel is FDA-approved for patients with metastatic castrate-resistant prostate cancer who have failed docetaxel. This patient has not had any chemotherapy. Although not listed, docetaxel is FDA-approved agent for men with castrate-resistant prostate cancer and may be an appropriate next treatment.

150. A 12-year-old boy has severe dysuria and hematuria. Ultrasound shows a bladder mass and mild right hydronephrosis. Urine culture is sterile. Cystoscopy shows a diffuse, erythematous, bullous mass at the bladder base. Biopsy shows intense inflammation, granulomatous reactions and an eosinophilic infiltrate. The best management is:

A. laser fulguration.
B. corticosteroids.
C. long-term antibiotics.
D. TUR of lesion.
E. cystectomy and diversion.
ANSWER=B

This patient has eosinophilic granulomatous cystitis. It usually presents as a mass-like lesion with irritative symptoms and hematuria. It may be mistaken for a neoplastic process, but is benign and self-limited. If the lesion is focal with minimal symptomatology, observation is appropriate. Patients with focal lesions may also be managed with laser fulguration or TUR. In diffuse lesions, resection is not indicated. Both antihistamines and steroids may aid in relieving symptomatology. Steroids have been reported to relieve symptoms faster although direct statistical comparisons are not available. Unless infection is also present, there is no need to treat with antibiotics. The process is non-specific and often idiopathic, although consideration for a causative condition is necessary; e.g., schistosomiasis in a patient at risk.

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1. A 32-year-old woman has a 0.5 cm vaginal mesh exposure one year following sling placement. There is no urinary tract involvement. Although she has occasional spotting, she is continent and neither she nor her sexual partner are bothered by the mesh. The next step is:

A. observation.
B. abstain from sexual intercourse until the mesh is epithelialized over.
C. local hormone therapy.
D. vaginal excision of exposed mesh.
E. remove the entire sling and perform a urethral bulking injection.
Answer= A

Conservative measures, including observation, are reasonable in the properly-selected patient who has a small area of exposure of mesh in the vagina. If the patient is not symptomatic, she does not necessarily need to abstain from intercourse, though it would be advisable to counsel her on the possibility that intercourse could exacerbate mesh exposure. Addition of local hormone therapy would be very reasonable in a postmenopausal woman, however, in a premenopausal woman, her vaginal tissue is likely to be adequately estrogenized; supplementation would therefore be of little to no benefit. Vaginal excision of the exposed mesh could be considered if she or her partner are symptomatic, but does not need to be performed in an asymptomatic patient. Removal of the entire sling is not indicated in this asymptomatic patient.

2. A 42-year-old man is unable to void following a straddle injury. Physical examination reveals blood at the meatus and a large perineal hematoma. Retrograde urethrography reveals a complete bulbar urethral disruption with contrast extravasation. The next step is:

A. urethral catheter placement.
B. suprapubic tube placement.
C. flexible cystoscopy with urethral realignment.
D. open cystotomy and antegrade urethral realignment.
E. perineal exploration and repair.
Answer= B

The patient has suffered a major straddle injury resulting in complete bulbar urethral disruption. The next best step is suprapubic tube placement and delayed reconstruction. Perineal exploration is not indicated in the setting of acute blunt trauma and complete disruption of the bulbar urethra. Catheter placement is not indicated with complete disruption. Antegrade or retrograde urethral realignment is not indicated with complete bulbar urethral disruption, yet may be possible with an anterior urethral contusion or incomplete disruption.

3. A patient has a transscrotal orchiectomy for a 3 cm testicular mass. At the time of exploration, there is violation of the tunica vaginalis. Pathology is pure seminoma. Chest and abdominal CT scan and serum markers are negative. The next step is:

A. surveillance.
B. retroperitoneal XRT.
C. retroperitoneal XRT including the groin and hemiscrotum.
D. excision of scrotal scar and retroperitoneal XRT.
E. three cycles of BEP.
Answer= C.

Suboptimal approaches to testicular neoplasms, including scrotal orchiectomy, transscrotal biopsy, or fine-needle aspiration are reported from 4-17% of the time. A recent meta-analysis of 206 cases of scrotal violation reported a local recurrence rate of 2.9% compared with 0.4% of patients treated by inguinal orchiectomy, but no difference in systemic relapse or survival rates. There did not appear to be any advantage to adjuvant therapy. Others have reported an increased local recurrence rate in patients with scrotal contamination and an 11% presence of tumor in hemiscrotectomy specimens of patients with scrotal violation. Therefore, for patients with scrotal violation with low-stage seminoma, the radiation portals should be extended to include the ipsilateral groin and scrotum. This may result in an increased risk of azoospermia. Observation is not appropriate in the setting of scrotal violation. Platinum, etoposide, and bleomycin (BEP) is appropriate for treatment of non-seminomatous germ cell tumors and advanced seminoma, not low-stage seminoma.

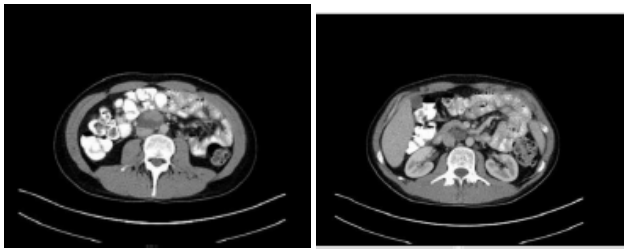
4. The effect of finasteride on serum and intraprostatic testosterone is:

A. Serum Testosterone: ↑; Intraprostatic Testosterone: ↑
B. Serum Testosterone: ↔; Intraprostatic Testosterone: ↔
C. Serum Testosterone: ↓; Intraprostatic Testosterone: ↓
D. Serum Testosterone: ↑; Intraprostatic Testosterone: ↓
E. Serum Testosterone: ↔; Intraprostatic Testosterone: ↑
Answer= A

There are two isoenzymes of 5-alpha-reductase (Type I and Type II). Finasteride blocks only the Type II isoenzyme. The prostate contains the Type II enzyme. Therefore, dihydrotestosterone (DHT) levels are decreased in the prostate. There is an upregulation of serum and intraprostatic testosterone. The serum DHT is typically decreased by about 85%, but not to castrate levels as circulating testosterone is converted to DHT by Type I isoenzyme in the skin and liver. The decreased DHT production leads to reduction in negative feedback which leads to increased LH production, hence increase serum testosterone.

5. A 21-year-old man receives a stem cell transplant with high-dose salvage chemotherapy for a Stage III NSGCT refractory to primary chemotherapy. After his salvage chemotherapy, his markers normalizeand his CT scan is shown. The next step is:

A. observation.
B. PET scan.
C. percutaneous biopsy.
D. two additional cycles of chemotherapy.
E. RPLND.



Answer= E

This patient has several residual masses after salvage chemotherapy. Given that he has received salvage chemotherapy and that his markers are normal, his best option is RPLND. The chance of viable disease is approximately 50%, teratoma 40%, and necrosis/fibrosis only 10%, thus, observation is a poor choice. A PET scan would not tell about teratoma which would need to be resected. A percutaneous biopsy could have sampling errors and would not obviate the need for additional treatment. Since the markers are normal, there is no indication at this time for additional chemotherapy especially in the salvage setting.

6. A 56-year-old man undergoes a radical cystoprostatectomy and orthotopic neobladder. Long-term preservation of renal function is most dependent on:

A. preferential use of ileum over colon.
B. use of > 60 cm of detubularized bowel.
C. performance of an antirefluxing ureteroileal anastomosis.
D. intraoperative neobladder capacity of >= 500 ml.
E. postoperative avoidance of any bacteriuria.
Answer= A

Reservoirs made of detubularized ileum appear to have the greatest compliance and lowest likelihood of generating intermittent high-pressure contractions. Several clinical studies have demonstrated that the urodynamic characteristics of the ileum appear to be superior to those of the colon and is therefore the preferred segment of bowel used for a neobladder. Larger bowel lengths with increased intra-operative volumes are not necessary as all bowel segments effectively stretch over time if there is adequate outflow resistance. In fact, commonly utilized techniques (e.g. Studer, T-pouch) utilize 40-44 cm of ileum with resultant intra-operative volumes of 200 ml or less. For ileal neobladders, it has been shown that the capacity increases sevenfold after one year. The true benefits of anti-refluxing anastomosis remain uncertain. It does not appear that conduit pressures are transmitted to the renal pelvis. Also, there is no difference in conduits between those with versus without reflux, with regard to renal function measured two to five years postoperatively. Furthermore, the successful construction of an anti-refluxing anastomosis does not prevent bacterial colonization of the renal pelvis. Many of these patients have no untoward effects and seem to do well with chronic bacteriuria. Deterioration of the upper tracts is more likely when the culture becomes dominant for Proteus or Pseudomonas, and should therefore be treated, whereas those with mixed cultures may generally be observed, provided they are not symptomatic.

7. A 63-year-old man undergoes partial nephrectomy in a solitary kidney. The renal artery is clamped for 40 minutes without the use of surface hypothermia. Postoperatively, the creatinine rises from 1.5 mg/dl to 2.5 mg/dl. The renal structure most likely to have been injured is:

A. cortical collecting duct.
B. distal convoluted tubule.
C. juxtaglomerular apparatus.
D. proximal convoluted tubule.
E. medullary thick ascending loop of Henle.
Answer= E"

The clinical scenario described is ischemic acute tubular necrosis (ATN). This is characterized by tubular cell injury which may be sublethal or lethal. During normal renal function, the medulla operates at the brink of hypoxia due to countercurrent diffusion of oxygen in the vasa rectae. During prolonged ischemia, medullary hypoxia is intensified and high metabolic requirements of the structures located in the outer medulla are most sensitive to injury. The medullary thick ascending limb of Henle is rich in the energy requiring Na+-K+ ATPase and is most sensitive to ischemic damage. The concept of ATN is important in partial nephrectomies and renal transplantation. The other structures are not located in the medulla. Management of ATN would include optimizing perfusion and oxygenation of the kidney, and minimizing nephrotoxic agents.

8. A 34-year-old man and his 29-year-old wife have a two year history of infertility. His physical exam is normal. Semen analysis reveals a volume of 2 ml, sperm 23 mil/ml, 2% motility, and 12% normal morphology. Repeat analysis is similar. The next step is:

A. sperm viability assay.
B. testosterone and FSH levels.
C. karyotype and Y chromosome microdeletion testing.
D. scrotal ultrasonography.
E. testicular sperm extraction.
Answer= A

This patient has a less than 5% motility. This raises the prospect of an ultrastructural abnormality in the sperm tails such as primary ciliary dyskinesia. This is characterized by extremely low motility but relatively high sperm viability on a sperm viability assay. Since the sperm concentration is normal, there is no indication for determination of testosterone, FSH, karyotype, or Y chromosome microdeletion testing. Scrotal ultrasonography will not add any useful information. Testicular sperm extraction is indicated for azoospermia. Since this patient has motile sperm in the semen, there is noreason for sperm extraction. Sperm from patients with ciliary dyskinesia may be used for intracytoplasmic sperm injection (ICSI), but pregnancy rates are low.

9. A morbidly obese 72-year-old man undergoes XRT for prostate cancer complicated by a urethral stricture requiring multiple direct visual internal urethrotomies. He subsequently develops BCG refractory CIS of the bladder cancer and chooses to undergo cystectomy. The risk factor that makes him an unacceptable candidate for orthotopic diversion is:

A. prior XRT.
B. morbid obesity.
C. urethral stricture disease.
D. age.
E. presence of CIS.
Answer= C

The patient has multiple risk factors which increase his risk for complications after surgery for cystectomy and orthotopic diversion, however, only urethral stricture disease would be a contraindication for the diversion. CIS does not appear by itself to significantly increase the risk of urethral recurrence after orthotopic diversion. Obese patients may actually do better with an orthotopic diversion as it avoids stomal issues that are common in the morbidly obese. Studies have demonstrated the safety and feasibility of performing orthotopic diversions in previously radiated patients. Similarly, age is not a contraindication. Patients with urethral stricture disease should not undergo orthotopic diversion as they may be unable to catheterize should the need arise and may cause overdistension of the neobladder which could lead to rupture.

10. A 47-year-old woman undergoes an abdominal sacrocolpopexy and a suburethral sling procedure. She is a nonsmoker and does not use estrogen replacement therapy. She is not obese. Recommended DVT prophylaxis is:

A. early ambulation only.
B. pneumatic compression device only.
C. heparin 5000 units subcutaneous every eight hours starting after surgery.
D. heparin 5000 units subcutaneous every 12 hours starting after surgery.
E. heparin 5000 units subcutaneous every 24 hours starting after surgery.
Answer= D

The patient is classified as moderate risk for DVT based on her age (> 40) and absence of additional risk factors, therefore prophylaxis is indicated. A pneumatic compression device would be recommended if the risk of intraoperative bleeding were high. Otherwise, heparin 5,000 units every 12 hours is recommended. Heparin 5,000 every eight hours dosing is recommender for those at high risk for DVT.

11. A 25-year-old man is evaluated as a potential living renal donor to his sister. Arteriography shows a single artery to each kidney. A left donor nephrectomy is undertaken and at surgery, a second unsuspected 1.5 mm diameter artery to the lower pole is found 5 mm inferior to the main renal artery. The best management is:

A. ligation of the polar artery.
B. use of a donor aortic patch encompassing both arteries.
C. use of a donor aortic patch encompassing the polar artery.
D. ex vivo anastomosis of the polar to the main renal artery.
E. ex vivo anastomosis of both arteries to a Dacron patch.
Answer= D

The proper management is to divide the two arteries separately during kidney removal and perform ex vivo end-to-side anastomosis of the small artery to the larger one. Unlike in cadaveric kidney donation, use of an aortic patch is contraindicated in living renal donors due to potential risk to the donor. Ligation of the lower pole vessel may lead to lower pole ischemia and potentially a urinary fistula. Transplantation with two arterial anastomoses in the recipient will lengthen the revascularization time and increase the risk of ischemic renal damage. Use of a Dacron patch is rarely indicated unless the recipient has significant atherosclerosis.

12. A 25-year-old woman experiences recurrent UTIs following sexual activity. Cultures with each episode reveal pan-sensitive E. coli. Each symptomatic episode has been treated for 14 days with nitrofurantoin. Five days after completing her most recent treatment, catheterized urine is sterile, PVR is negligible, and pelvic exam is normal. If she experiences another UTI, the next step is:

A. retreat with nitrofurantoin and counsel the patient to drink more fluids, improve hygiene, and void after intercourse.
B. treat with three days of trimethoprim-sulfamethoxazole.
C. renal bladder ultrasound.
D. renal bladder ultrasound and cystoscopy.
E. renal bladder ultrasound, cystoscopy, and localization cultures.
Answer= B

Conservative measures such as hydration, hygiene, and voiding after intercourse have been documented to be ineffective in preventing post-coital UTIs. The most likely cause for her recurrent infections is persistence of uropathogenic bacteria in the vaginal flora, which were ineffectively treated with the urinary concentrated antibiotic, nitrofurantoin. Treatment with three days of trimethoprim-sulfamethoxazole will eliminate vaginal colonization. Upper tract imaging and cystoscopy are indicated if recurrence of the same bacteria occurs rapidly despite treatment with an antibiotic that eradicates vaginal colonization. Localization cultures may be indicated if cystoscopyand upper tract imaging are unrevealing. Post-coital antibiotic prophylaxis is another treatment option.

13. A distal urethral perforation occurs during insertion of a malleable penile prosthesis. The contralateral cylinder has not been placed. The next step is:

A. place urethral catheter and complete the implantation.
B. repair urethra and implant the contralateral prosthesis.
C. repair urethra and place a suprapubic tube only.
D. repair urethra, proceed with implantation, and place a suprapubic tube.
E. place urethral catheter and terminate the procedure.
Answer= E

If urethral perforation occurs during dilation, it is best to abandon the procedure, divert the urine with a urethral catheter, and return at a later date. If the contralateral cylinder has already been placed and there is no septal perforation, then it may be left in place. The urine should be diverted. Urethral repair would be difficult and is unnecessary. Should this occur with an inflatable prosthesis, the entire device should be removed and the urethra allowed to heal.

14. A 27-year-old man with a C5 spinal cord injury has recurrent problems with sediment and clogging of his indwelling urethral catheter despite frequent catheter changes. The next step is:

A. urine culture to identify urease producing organism.
B. daily acetic acid irrigation.
C. placement of a large lumen suprapubic tube.
D. non-contrast CT scan.
E. cystoscopy.
Answer= A

Simple measures such as catheter irrigations and placement of a larger diameter suprapubic tube may temporize but not completely address the underlying problem of recurrent catheter encrustation with sediment. Catheter encrustation is attributed to bacterial biofilm, particularly biofilms made by urease producing bacteria such as proteus mirabilis. Urine culture is the appropriate next step. If a urease producing organism is identified, both treatment of the offending organism and evaluation for the presence of bladder or upper tract stones that could be serving as a nidus for bacterial infection is necessary.

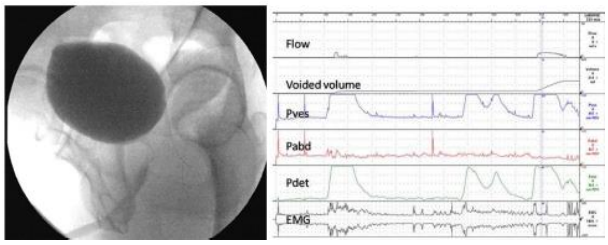
15. A 58-year-old woman undergoes an uncomplicated laparoscopic right adrenalectomy for a 6 cm cortisol hypersecreting right adrenal mass. On postoperative day two, she has a low-grade fever, nausea, vomiting, hypotension, and abdominal pain. The next step is:

A. 24-hour urine-free cortisol measurement.
B. measurement of plasma metanephrine levels.
C. hydrocortisone therapy.
D. broad-spectrum antibiotics.
E. exploratory laparotomy.
Answer= C

Acute adrenal insufficiency, or adrenal crisis, is an acute condition often preceded by hypotension unresponsive to fluid resuscitation. Patients are often misdiagnosed with an acute abdomen, whereas abdominal pain, nausea, vomiting, and fever frequently accompany hypovolemia. Adrenal insufficiency following adrenalectomy in the setting of a normally functioning contralateral adrenal gland is unlikely, but possible. This is especially true for patients who are undergoing adrenalectomy for a cortisol-secreting lesion, because functionality of the contralateral gland can be suppressed as in this patient. The diagnosis of primary adrenal insufficiency is primarily made on clinical grounds, with a high index of suspicion given a patient's history, exam, and laboratory evaluation. Because adrenal crisis can be an acute and potentially life-threatening condition, consideration for treatment (i.e. repletion) should be made at the outset. If desired, the diagnosis is ultimately secured by measurements of morning serum cortisol and ACTH, but unnecessary delay in treatment should not be made simply to secure this diagnosis. Urinary cortisol and metanephrine levels are not indicated or necessary in this case. Furthermore, the initiation of broad-spectrum antibiotics will not address the underlying problem of adrenal insufficiency. The treatment of adrenal insufficiency involves adrenal hormonal repletion. Cortisol is replaced with hydrocortisone or with cortisone acetate.

16. A 45-year-old neurologically normal man has worsening urinary incontinence for several years. Videourodynamic study is shown with the voiding image. The diagnosis is:

A. striated sphincter dyssynergia.
B. stress urinary incontinence.
C. bulbar urethral stricture disease.
D. detrusor overactivity with impaired contractility.
E. bladder neck obstruction.



Answer= E

The urodynamic tracing indicates detrusor overactivity associated with incontinence and bladder outlet obstruction during emptying. The tracing does show increased EMG activity during the detrusor overactivity but this is due to volitional suppression, not true striated

dyssynergia. The image demonstrates narrowing at the proximal urethra consistent with bladder neck obstruction with voiding. At the time, the voiding image is taken there is no increased EMG activity excluding striated sphincter dyssynergia. There is no bulbar urethral narrowing to suggest urethral stricture disease. High-pressure voiding excludes impaired detrusor contractility.

17. Three months following a bilateral nerve sparing radical prostatectomy, a 65-year-old man has erectile dysfunction. He has failed oral therapy and wishes not to pursue intracavernosal injection therapy. He attempts intraurethral alprostadil 1000 mcg. The most likely occurrence is:

A. inadequate erection.
B. penile pain.
C. headache.
D. hypotension.
E. urethral bleeding.

Answer= A

Intra-urethral prostaglandin administration is a reasonable alternative to intracavernosal injection therapy. Significant decrease in blood pressure occurs in approximately 2% of men. Penile pain is estimated to occur in 18-33% of men. Only 40% of men will consistently attain an erection adequate for penetration with intra-urethral alprostadil. Urethral bleeding is reported in about 5% of men and headache is rare.

18. An adverse prognostic feature not included in the Motzer Criteria for patients with metastatic RCC is:

A. Karnofsky performance status (KPS) < 80%.
B. elevated LDH.
C. thrombocytopenia.
D. prior nephrectomy.
E. hypercalcemia.

Answer= C

The natural history of RCC is highly unpredictable. For instance, approximately 5% of patients with what are usually small indolent tumors (< 4 cm in size), will have metastatic disease at presentation and subsequently an elevated risk of disease-specific mortality. In contrast, up to 40% of patients with lymph node metastases diagnosed at the time of nephrectomy are alive five years after surgery. The Motzer criteria is a validated risk measurement tool that the physician may employ to aid in the discussion regarding the patient's prognosis and is a useful guide in the formulation of treatment options. RCC risk groups are determined by the number of existing adverse features. The adverse features included in the Motzer criteria are Karnosky performance status < 80%, elevated LDH, anemia, hypercalcemia, and prior partial or total nephrectomy. Thrombocytopenia is not part of the criteria. If no risk factors are present, the patient is considered at low risk for recurrence. The presence of one to two features indicates intermediate risk and the presence of three to five adverse features poor/high risk for tumor recurrence.

19. The imaging study providing the best sensitivity and specificity for assessing bony metastatic disease in men with high-risk prostate cancer is:

A. plain film tomography.
B. CT scan with bone windows.
C. 99mTc-MDP bone scan.
D. 18F-fluoride PET scan.
E. single-photon emission computed tomography (SPECT) scintigraphy.

Answer= D

In 2009, the Division of Cancer Treatment and Detection of the National Institutes of Health (NIH) conducted a review concerning 18F-PET imaging and its utility for assessing cancer metastases to bone, and concluded that 18F-PET provides the best sensitivity and specificity for the detection of bony metastases in prostate cancer. This review and other studies have demonstrated the superiority of 18F-PET to conventional (99mTc-MDP) bone scan with regard to specificity and sensitivity. Plain film tomography, CT scan with bone windows, and SPECT/CT have been used to evaluate suspicious or suspected areas of bony metastasis, but are not utilized for the initial survey of metastases in the high-risk patient. Each of these studies have more limited performance characteristics than 18F-PET. It remains to be seen whether this imaging modality will become the standard of care.

20. A 32-year-old man with infertility has unilateral absence of the vas deferens and 28 ml testes. Semen analysis reveals a volume of 0.5 ml, azoospermia, and pH of 6.4. FSH is 4.9 IU/l. Transrectal ultrasound reveals ipsilateral seminal vesicle agenesis and contralateral seminal vesical hypoplasia. Genetic testing is normal. The next step is:

A. renal ultrasonography.
B. scrotal exploration with vasography.
C. scrotal ultrasound.
D. sweat test.
E. testis biopsy.

Answer= A

Low volume azoospermic acidic semen suggests lack of seminal vesicle contribution to the semen. The differential diagnosis of this finding is: bilateral ejaculatory duct obstruction and congenital bilateral absence of the vas deferens (CBAVD). Transrectal ultrasound can differentiate between the two entities with CBAVD patients having either seminal vesicle agenesis or seminal vesicle hypoplasia. Bilateral ejaculatory ductal obstruction is associated with midline urethral cysts, bilateral seminal vesicle cysts, or the bilateral seminal vesical cysts with dilation of the ejaculatory ducts. CBAVD variants, as in this patient, one vas may be non-palpable while the other is present in the scrotum but absent in the pelvis. All CBAVD patients (including variants) should have genetic testing for cystic fibrosis. Up to 30% of patients will have no identifiable cystic fibrosis mutation. Some ofthese patients will have unilateral renal agenesis. It is thought that these patients have CBAVD due to mesonephric ductal-ureteral bud abnormalities. Up to 5% of these patients will be found to have renal agenesis, a finding not associated with CBAVD due to cystic fibrosis. It is therefore recommended that patients with CBAVD with a negative genetic test for cystic fibrosis, have a renal ultrasound performed. Scrotal exploration and vasography are not indicated in CBAVD patients, diagnosis is made by physical exam plus transrectal ultrasound for CBAVD variants. Scrotal ultrasound will not help with the diagnosis. The sweat test is not indicated in this patient with normal genetic testing and no clinical symptoms of cystic fibrosis. Testis biopsy to evaluate infertility is not indicated because the patient has CBAVD, normal FSH, and normal-sized testes. Treatment options for infertility in CBAVD patients is ICSI with sperm retrieval by TESE and implantation by IVF. Note in patients with CBAVD negative for cystic fibrosis, offspring may carry the trait and children with unilateral and bilateral renal agenesis have been reported.

21. A 50-year-old smoker with gross hematuria has a 1 cm left mid-ureteral filling defect on CT urography. The lesion is biopsied and laser ablated ureteroscopically. Histology reveals an inverted papilloma. The next step is:

A. no further treatment or follow-up.
B. long-term antibiotics.
C. surveillance of the bladder and upper tracts.
D. segmental ureterectomy.
E. left nephroureterectomy.

Answer= C

Inverted papillomas are typically of two types (Type 1 and Type 2). Type 2 may exhibit a malignant behavior whereas Type 1 is benign.

Unfortunately, they are histologically indistinguishable. Because of this, conservative treatment followed by surveillance for two years is recommended. Therefore no further treatment or follow-up is incorrect. Since it is possibly a benign lesion and presumably

22. A 40-year-old woman has urine draining from a port site three days following laparoscopic assisted vaginal hysterectomy. Cystogram is shown and bilateral retrograde pyelograms are normal. The next step is:

A. prolonged catheter drainage.
B. bilateral percutaneous nephrostomies.
C. exploratory laparotomy.
D. transvaginal repair.
E. place pelvic drain.

Answer= C

This patient has a large intraperitoneal bladder perforation and urinary ascites from an unrecognizedbladder injury during hysterectomy. The best choice for management is immediate transperitoneal exploration with repair of the bladder injury. This will allow drainage of the urinary ascites, washing out of the peritoneal cavity, and significantly reduce the risk of peritonitis and vesicovaginal fistula formation. The use of a pedicalized omental flap to place between the bladder repair and the vaginal cuff suture lines should also be attempted to avoid overlapping suture lines and further minimize risk of post-operative fistula. Prolonged catheter drainage is the incorrect management of an intraperitoneal bladder injury and may result in prolonged urinary ascites with resultant persistent ileus and peritonitis. Bilateral nephrostomy tubes often do not result in complete urinary diversion and would likely result in a prolonged clinical course and delay recovery. Transvaginal repair is the wrong approach to repair an intraperitoneal bladder injury.

23. A 27-year-old gunshot victim has a short upper ureteral injury and a splenic injury. During exploratory laparotomy, his vital signs are unstable with significant hypotension despite management of the splenic injury. No other acute injuries are present. The next step in management of his ureteral injury is:

A. retrograde ureterogram and placement of a ureteral stent.
B. excision of injured segment and ureteroureterostomy.
C. transureteroureterostomy.
D. ligation of ureter and percutaneous nephrostomy.
E. nephrectomy.

Answer= D

In an unstable patient, ureteral injuries are best managed by ureteral ligation, percutaneous nephrostomy drainage, and delayed repair. In these instances, other choices are inappropriate because of the time needed for completion of the repair. In stable patients, short upper ureteral injuries may be managed by ureteroureterostomy with excision of the injured segment. A transureteroureterostomy may be appropriate with a long mid-ureteral injury but not an upper ureteral injury. A nephrectomy is not indicated in the absence of renal trauma especially if delayed salvage of the ureter is possible.

24. A 60-year-old smoker has a highly suspicious voided urinary cytology. CT urogram is normal. Cystoscopy, bladder biopsy, and bilateral retrograde pyelograms are normal. Selective left upper tract cytologies are highly suspicious for malignancy. The next step is:

A. repeat cystoscopy, biopsy, retrograde pyelography, and selective cytologies in three months.
B. repeat left ureteral washings for fluorescent in-situ hybridization (FISH).
C. left ureteropyeloscopy.
D. left ureteral stent and intravesical BCG.
E. left percutaneous nephrostomy and antegrade BCG therapy.

Answer= C

In cases of unilateral upper tract cytologic abnormalities (with normal cystoscopy, pyelography, and bladder biopsies), ureteropyeloscopy is indicated as the next step. Ureteropyeloscopy allows for direct visualization of small lesions and is superior to retrograde pyelography in the detection of small tumors. Biopsy at the time of ureteropyeloscopy should be attempted, if feasible. A persistently abnormal cytology without any visualized lesions may signify CIS. In the past, nephroureterectomy was performed for a unilateral cytologic abnormality of the upper tract to eliminate presumed CIS, but this is no longer considered an appropriate initial approach. Observation is also not appropriate without further evaluation given the repeated abnormal cytologies. Current approaches for presumed upper tract CIS include topical immunotherapy or chemotherapy, delivered retrograde intravesically with ureteral stents in place to assist with reflux or antegrade via a nephrostomy tube under careful pressure control. Novel urinary markers (e.g., FISH) have been reported for upper tract tumor surveillance and may aid in the detection of such tumors. To date, none of these markers have a high enough sensitivity or specificity to make decisions for or against therapeutic intervention. In this case, repeat procedure under anesthesia to obtain a selective urinary sample for FISH is not warranted.

25. A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. Serum creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:

A. captopril plasma renin activity test.
B. unstimulated plasma renin activity test.
C. captopril renography.
D. duplex ultrasound.
E. diuretic renography.

Answer= D

This 52-year-old man is at risk for renovascular hypertension. Of the two captopril modulated tests: plasma renin activity (PRA) and captopril renogram, the renogram is a better test than peripheral PRA. Critical to the performance of these tests is appropriate patient preparation. Ideally, patients should be off all medications for two weeks. This is usually not possible clinically. In patients on medications it is critically important to recognize that the use of ACE inhibitors will significantly reduce the sensitivity of captopril stimulated testing and should be discontinued two weeks prior to the test. However, other antihypertensive medications can be used up to the morning of testing. In this clinical setting, duplex ultrasound will give anatomic information on the renal arteries sufficient to determine the need for angiography. Diuretic renography is not generally used as a test for renal artery stenosis.

26. A 65-year-old woman with controlled flank pain has an opaque 6 mm distal right ureteral stone. Urine pH is 6.0. She has no pyuria, fevers, or chills. She is scheduled to undergo cataract surgery in four weeks. The next step is:

A. corticosteroids.
B. tamsulosin.
C. sodium bicarbonate.
D. ureteral stent.
E. ureteroscopic extraction.

Answer= E

The AUA Ureteral Calculi Guideline states that for newly diagnosed ureteral stone < 10 mm and whose symptoms are controlled, observation with periodic evaluation is an initial option. Furthermore, such patients may be offered an appropriate medical therapy to facilitate stone passage during this observation period. Metanalysis has shown tamsulosin to be superior to nifedipine in medical expulsive therapy. However, tamsulosin has been described to cause intraoperative floppy iris syndrome (IFIS) and complicates cataract surgery. Therefore, in a patient who is about to undergo cataract surgery, it would be best to avoid tamsulosin. Therefore, the options for this particular patient are observation, SWL, ureteroscopic extraction, or ureteral stent. A 6 mm stone is best treated by ureteroscopic extraction, because more often than not (53% of the time), these stones will not spontaneously pass. An opaque stone implies that the stone is not uric acid and therefore alkalization with sodium bicarbonate would be an incorrect choice.

27. Screening for RCC in patients with ESRD should be reserved for patients:

A. with significant comorbidities.
B. initiating hemodialysis.
C. with a history of obesity and tobacco abuse.
D. who have undergone at least three years of dialysis.
E. with autosomal dominant polycystic kidney disease.

Answer= D

The relatively low incidence of RCC in the general population and the potential risk of identifying clinically insignificant lesions argue against widespread screening. However, several well-defined target populations who are at increased risk of RCC may be suitable for screening efforts. The relative risk of RCC in patients with ESRD has been estimated to be 5-20 times higher than that in the general population. The majority of patients with ESRD will develop acquired renal cystic disease (ARCD) and some of these patients will develop RCC. Cystic disease is associated with time of maintenance dialysis; increasing with duration of therapy. In renal failure patients, a reasonable approach to screening for patients with ESRD without other major comorbidities, is to delay screening until the third year on dialysis. Those with significant comorbidities, and thereby limited life expectancies, are not felt to benefit from screening and thereby should not be screened. Patients undergoing maintenance hemodialysis were previously thought to have a higher incidence of ARCD and thereby a higher risk of renal carcinoma than patients on peritoneal dialysis. However, recent studies have demonstrated similar rates of ARCD in both dialysis subgroups, and thereby suggests both forms of maintenance dialysis would increase the risk of developing renal carcinoma. Obesity and tobacco abuse have been shown to be risk factors for RCC, but these conditions themselves do not necessarily warrant screening efforts in patients with renal dysfunction. Screening for RCC in autosomal dominant polycystic kidney disease (ADPKD) was previously recommended. However, recent studies suggest no significantly increased risk of RCC in ADPKD and imaging is extremely difficult in this population related to the altered intrarenal architecture. Taken together, these considerations suggest that screening for RCC in patients with ADPKD should not be pursued.

28. A 55-year-old man has flank and bladder pain with a ureteral stent after uncomplicated ureteroscopy. The next step is analgesics and:

A. oxybutynin.
B. nifedipine.
C. tamsulosin.
D. prednisone.
E. phenazopyridine.

Answer= C

A metanalysis of patients treated with alpha-blockers for stent discomfort identified 12 randomized controlled trials with 946 patients. It concluded that alpha-blockers were associated with a significant decrease in urinary symptoms and pain, and significant improvement in general health. In contrast, randomized controlled studies failed to demonstrate benefits with oxybutynin, phenazopyridine, or a ketorolac eluting ureteral stent. Periureteral botulinum toxin injection at the time of stent placement has been demonstrated to decrease stent morbidity, however, this would require a secondary cystoscopic procedure, and has not been studied as a "rescue" procedure after stent placement. Nifedipine and prednisone have not been studied for use in stent pain.

29. A 58-year-old woman returns to the office two months following sacral neuromodulation with a low grade fever and incisional drainage associated with pain and erythema over the implantable pulse generator (IPG) site. The next step is explantation of the:

A. IPG only.
B. IPG and lead.
C. IPG, wound irrigation and cleansing with antibiotic solution, and reimplantation of the IPG.
D. IPG and lead with simultaneous test stimulation of a new lead.
E. IPG with simultaneous placement of an IPG on the contralateral side.

Answer= B

This patient has an infected IPG. The bacterial infection of the artificial IPG will result in a bacterial biofilm that will also contaminate the lead. Both the IPG and lead should be explanted. Their risk of infection of a new device or new lead placement at the time of explantation is too high and should not be pursued. The proper management is explantation of all prosthetic material, treatment of the infection, and repeat test stimulation in the future when the patient is completely recovered.

30. A 35-year-old woman with no significant findings on medical history has a non-contrast CT scan performed for right flank pain. A 2 cm left adrenal mass (5 HU) is identified. The next step is:

A. observation.
B. repeat CT scan in three months.
C. biochemical work-up.
D. percutaneous biopsy.
E. gadolinium enhanced MRI scan.

Answer= C

The incidental adrenal lesion, or incidentaloma, is an adrenal mass 1 cm or larger in size discovered during radiographic imaging performed for indications other than adrenal disease. They are found in approximately four to six percent of the imaged population. Almost all of incidental adrenal lesions < 4 cm in size will prove to be benign in a patient without a known history of cancer. In patients with a known history of cancer, up to 50% will represent metastatic malignancy. This patient has an incidentally discovered adrenal adenoma that is probably benign based on its size and the HU of 5. Specifically, a non-contrast CT scan revealing a < 4 cm adrenal mass with HU < 10 carries a 98% specificity that the diagnosis is a benign adrenal adenoma. In masses with HU > 10, a contrast CT scan with early phase wash-out could be obtained to rule-out malignancy; it is, however, not necessary in this instance. Similarly, a gadolinium-enhanced MRI scan is not indicated and is not as good as CT scan when looking for adrenal hypervascularity. The current recommendation for the management of an incidentally discovered adrenal mass < 4 cm in size with an HU value of < 10 is a biochemical work-up to include cortisol and catecholamines. In patients with a history of hypertension, a hyperaldosteronemia should also be ruled out. Approximately 7% of these incidentalomas are metabolically active, 6% cortisol, and 1% sex or aldosterone secreting. Surgical resection is recommended for all metabolically active adrenal tumors or adrenal tumors > 4 cm. Of note, in a seven

year follow-up study of 231 patients with incidental adrenal tumors < 4 cm in size and HU < 10, less than 2% of the metabolically inactive adrenal tumors will either substantially grow or become metabolically active. Therefore, neither observation nor repeat CT scan in three months is appropriate. If the patient had a history of a prior malignancy, higher HU, or larger mass, then biopsy might be indicated.

31. The coagulation of human semen is dependent on:
A. seminal vesicle-specific antigen.
B. PSA.
C. calcium.
D. fibrinogen.
E. factor XII.
Answer= A
The major clotting protein in semen has been termed semenogelin, which has been shown to be the seminal vesicle-specific antigen. These clotted proteins serve as the substrate for PSA which liquefies the semen. Calcium-binding substances, such as sodium citrate and heparin do not inhibit the coagulation. Blood clotting proteins such as prothrombin, fibrinogen, and factor XII are not present in semen.

32. A 12-year-old boy has painless terminal gross hematuria. Physical examination is normal. Urinalysis shows 3-5 RBC/hpf. Urine culture is negative. The next step is:
A. observation.
B. urine calcium to creatinine ratio.
C. non-contrast CT scan.
D. VCUG.
E. cystoscopy.
Answer= A
The clinical picture is consistent with benign urethrorrhagia based on terminal gross hematuria and normal physical examination. Urinalysis shows microscopic hematuria only, and the culture is negative. This condition is caused by transient inflammation of the bulbar urethral epithelium. The cause is not known. No further work-up such as calcium to creatinine ratio, non-contrast CT scan, VCUG, or cystoscopy is necessary since this is self-limiting.

33. A 49-year-old man with a continent cutaneous reservoir has a KUB as shown. He has good continence. Serum creatinine is 1.4 mg/dl. Split renal function by renal scintigraphy is 10% right, 90% left. The next step is:
A. open extraction of reservoir stones.
B. percutaneous extraction of reservoir stones.
C. percutaneous extraction of reservoir and renal stones.
D. open extraction of reservoir stones and right nephrectomy.
E. revision of reservoir and right nephrectomy.

Answer= D
The radiograph reveals a staghorn stone in the right kidney and several large stones in the Indiana Pouch. SWL or percutaneous extraction of the pouch stones does not address the renal calculi. The staghorn stone needs to be treated as well, an untreated staghorn stone risks urosepsis. Since the right kidney is contributing little to the patient's adequate renal function, nephrectomy is recommended over stone removal procedures that leave the kidney in place. Though percutaneous extraction of pouch stones is recommended, open surgical extraction is a good alternative with this large stone burden. In a urinary diversion with good continence, pouch revision is not necessary. The patient should be encouraged to catheterize and irrigate the pouch more frequently.

34. A 55-year-old woman has new onset moderate left hydronephrosis on non-contrast CT scan. Twenty years earlier, she underwent cystectomy and ileal conduit for a neurogenic bladder. Her serum creatinine is 1.4 mg/dl. The next step is:
A. observation.
B. urine cytology.
C. loopogram.
D. percutaneous nephrostomy.
E. looposcopy with catheterization of the left ureter.
Answer= C
Some hydronephrosis is expected after ileal conduit urinary diversion. Without a history of malignancy, computed tomography with contrast is not necessary. Loopography is the recommended next step with the new onset of hydronephrosis. It can assess for reflux into the left kidney. If there is free reflux, then obstruction is unlikely. If reflux is absent, then diuretic renal scintigraphy can be used to assess for obstruction. If obstruction is present, percutaneous nephrostomy can drain the kidney and allow the system to be studied. Looposcopy with ureteral catheterization is unlikely to succeed if the system is obstructed, and is unnecessary if it is not obstructed.

35. A 26-year-old infertile man has an ejaculate volume of 0.9 ml, sperm count of 10 million/ml, and 20% motility. Physical examination and hormonal evaluation are normal. The next step is:
A. antisperm antibody testing.
B. semen culture.
C. post-ejaculatory urinalysis.
D. TRUS.
E. scrotal Doppler ultrasonography.
Answer= C
The patient's evaluation reveals oligoasthenospermia with low ejaculate volume without any obviouscause. Post-ejaculatory urinalysis (PEU) is the best next step in order to identify a correctable cause for this patient's semen abnormalities. Hamster egg penetration test and antisperm antibody testing are useful for prognostic purposes but will not identify a correctable abnormality. Post-coital test is helpful in patients with isolated volume problems but would not be helpful in patients with oligoasthenospermia. Scrotal ultrasonography for subclinical varicocele is not indicated. TRUS may be considered if the PEU is negative but should not be considered first since it is more invasive than a PEU.

36. A 70-year-old man is undergoing radical cystectomy and continent orthotopic urinary diversion for muscle-invasive high-grade urothelial carcinoma. During lymphadenectomy, a suspicious, firm 1.5 cm positive external iliac lymph node is confirmed to be positive for metastasis. The next step is:
A. abort surgery and treat with chemotherapy and XRT.
B. abort surgery and treat with chemotherapy followed by cystectomy.
C. perform lymphadenectomy and treat with chemotherapy and XRT.
D. complete surgery but perform an ileal conduit urinary diversion.
E. complete surgery as planned.
Answer= E.
At the time of radical cystectomy, suspicious lymph nodes can be encountered. Approximately 25% of patients will ultimately have positive lymph nodes at the time of radical cystectomy. If the suspicious node(s) can be safely resected and the volume of suspicious lymph nodes is limited, it is reasonable to continue the cystectomy and continent urinary diversion. The patient will benefit from the local control of the lymphadenectomy and cystectomy.

There is no evidence that stopping the surgery to treat with neoadjuvant chemotherapy or chemotherapy and radiation therapy is superior to completing the cystectomy. Positive lymph nodes are not a contraindication to continent urinary diversion.

37. Three months after placement of a three-piece inflatable penile prosthesis, a patient has persistent penile shaft pain with inflation. Physical examination of the penis and scrotum is normal. The next step is:
A. pelvic and scrotal MRI scan.
B. cystourethroscopy.
C. 500 mg cephalexin BID for 30 days.
D. glansplasty.
E. revision of reservoir with a lock out valve.
Answer= A
This patient complains of pain only when the device is inflated during intercourse which may indicate that the cylinders are too large and are buckling, causing pain. MRI scan with the prosthesis inflated is the best imaging modality to prove the possible size discrepancy and buckling is the next step. If the diagnosis is confirmed, revision of the penile prosthesis with placement of smaller cylinders will usually resolve the problem. Penile infection following prosthetic placement usually has associated physical signs of infection (warmth, tenderness, erythema, etc.) that exist in both the flaccid or erect state. An SST deformity (floppy glans) is usually well-described by a patient and can be confirmed by physical examination. It can be repaired by moving the glans onto the distal portion of the cylinders with a glansplasty. Cystourethroscopy is indicated in the presence of voiding symptoms and/or possible infection of the penile prosthesis to rule out urethral erosion, but is not indicated in patients with pain only on inflation. Revision with a lock-out valve would only be useful in cases of autoinflation.

38. In patients with uric acid stones, the primary underlying metabolic defect is:
A. hyperuricosuria.
B. hyperuricemia.
C. low urine pH.
D. low urine volume.
E. RTA.
Answer= C
Although hyperuricosuria, low urine pH, and low urine volume are all important contributors to uric acid stone formation, a persistently acid urine (pH < 5.5) is the most important determining factor for uric acid stones. Although hyperuricemia is the hallmark of primary gout, not all patients with uric acid stones have either hyperuricemia or gout. Renal tubular acidosis is associated with high rather than low urine pH, hyperchloremia, and hypokalemia.

39. A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and post-void dribbling. A renal ultrasound is normal. A pelvic ultrasound is shown. The most likely diagnosis is:
A. cecoureterocele.
B. ectopic ureter.
C. Cowper's duct cyst.
D. prostatic utricle.
E. bladder diverticulum.

Answer= D
In boys with proximal hypospadias, the prostatic utricle is often enlarged. In a female, this would represent the distal one-third of the vagina. The utricle is of urogenital sinus origin. While an ectopic ureter or bladder diverticulum could have a similar appearance on ultrasound, they generally are not midline in location. Ectopic ureter or bladder diverticulum are not seen commonly with hypospadias.A cecoureterocele would have a bladder deformity in addition to a suburethral extension. A Cowper's duct cyst or syringocele should be confined to the bulbous or prostatic urethra where Cowper's ducts drain.

40. A 45-year-old man undergoes a partial penectomy for a 3 cm, grade 3, squamous cell carcinoma of the penis. Pathology reveals invasion of the corpus cavernosum and negative margins. On exam, he has matted firm 6 cm right inguinal lymph nodes and a CT scan of the chest, abdomen, and pelvis reveals right sided inguinal adenopathy but no other metastases. The next step is:
A. percutaneous biopsy of the inguinal lymph nodes.
B. right inguinal lymph node dissection.
C. bilateral inguinal lymph node dissection.
D. bilateral inguinal and pelvic lymph node dissection.
E. neoadjuvant chemotherapy.
Answer= E
Neoadjuvant platinum-based chemotherapy is indicated for patients with difficult to resect matted or fixed inguinal lymph nodes from metastatic penile cancer. The neoadjuvant chemotherapy should reduce the size of the nodes and enhance their resectability. Following neoadjuvant chemotherapy, the patient should have a bilateral inguinal and pelvic lymphadenectomy. A percutaneous biopsy is not necessary in this setting.

41. Pyospermia in an infertile man commonly suggests:
A. a sexually transmitted infection.
B. UTI.
C. antisperm antibodies.
D. functional sperm damage.
E. failure to retract foreskin.
Answer= D
Leukocytes are often present in the semen of infertile men. They are seldom due to documentable infection or antisperm antibodies. They do often indicate functional damage from DNA fragmentation to sperm membrane lipid peroxidation from reactive oxygen species released from the leukocytes. Leukocytes can occur with UTIs, but unless urine is in the semen, this is an unlikely source. Sexual transmitted infections can also lead to leukocytes in semen and this does need to be ruled-out, however, even PCR DNA testing for sexual transmitted pathogens are often negative verifying the situation is most commonly idiopathic.

42. A three-year-old girl undergoes an upper pole heminephrectomy for an ectopic ureter. Three days later, she has worsening pain, fever, and hematuria. The next step is:
A. observation.
B. Doppler ultrasound.
C. retrograde pyelogram.
D. CT angiogram.
E. ureteral stent.
Answer= B
The symptoms suggest either a urinoma or vascular injury to the lower pole segment, and is best evaluated with Doppler ultrasound. Pain, fever, and hematuria are common early, but should improve in the first 48-72 hours. Retrograde pyelogram and ureteral stent would be indicated for documented unresolving urinoma. CT angiogram has the disadvantage of radiation exposure without added clinical information that Doppler ultrasound would provide.

43. During performance of a transobturator midurethral polypropylene sling, the trocar normally passes through the:
A. ischiorectal fossa.
B. obturator canal.
C. sartorius muscle.
D. bulbospongiosus muscle.
E. ischiocavernous muscle.
Answer= A.
During placement of an obturator sling, regardless of approach, the trocar should pass through the ischiorectal fossa. It passes through the obturator foramen but not the obturator canal. It does not normally pass through any of the other listed structures. An outside-in transobturator passage traverses the gracilis muscle, adductor longus and brevis muscles, obturator externus muscle, obturator membrane, and obturator internus muscle. The gracilis muscle adducts and flexes the hip. The adductor longus and adductor brevis muscles adduct the thigh. The obturator externus and obturator internus muscles aid with thigh adduction and lateral rotation. Structures that affect medial thigh rotation are not traversed with a transobturator approach.

44. A 45-year-old, otherwise healthy woman, has mild left CVA tenderness, bacteruria, and a temperature of 38.8° C. She is able to take oral fluids. The next step is urine culture and:
A. inpatient I.V. antibiotic therapy.
B. abdominal and pelvic CT scan.
C. renal ultrasonography.
D. outpatient therapy with oral nitrofurantoin.
E. outpatient therapy with an oral fluoroquinolone.
Answer= E
In patients with an acute uncomplicated pyleonephritis, hospitalization is not required if they are able to maintain oral hydration. These patients should have a urine culture and sensitivity obtained and empirical antimicrobial therapy should be initiated immediately. Fluoroquinolones and TMP-SMX are excellent choices. Nitrofurantoin is effective in urine, but does not obtain therapeutic levels in most body tissues and is therefore not preferred for UTIs. Upper tract imaging is not required when uncomplicated pyelonephritis is suspected. However, imaging should be considered if the patient does not respond to antibiotic therapy within 72 hours, or in the presence of specific indications suggestive of a complicated UTI such as diabetes mellitus, immunosuppression, and history of nephrolithiasis or symptoms suggestive of urinary tract obstruction.

45. A 70-year-old man undergoes a difficult radical cystectomy for high-risk bladder cancer. His perioperative course is complicated by hypotension managed with crystalloid, two units of packed RBC, vasopressors, and intensive care monitoring. He later develops severe renal insufficiency requiring dialysis. According to the Clavien-Dindo Classification, his surgical complication grade is:
A. II.
B. IIIa.
C. IIIb.
D. IVa.
E. V.
Answer= D
The Clavien-Dindo classification of surgical complications is largely becoming the standard system for reporting adverse events after surgery that deviate from the normal postoperative course. As the patient required dialysis, due to single organ dysfunction, he would be considered grade IVa. The classification is: **Grade I:** Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic, and radiological interventions. **Grade II:** Requiring pharmacological treatment with drug other than such allowed for grade 1 complications. (Includes blood transfusion and TPN). **Grade III**: Requiring surgical, endoscopic or radiological intervention. Grade IIIa: Intervention not under general anesthesia. Grade IIIb: Intervention under general anesthesia. **Grade IV**: Life-threatening complication. Grade IVa: Single organ dysfunction. Grade IVb: Multiorgan dysfunction.

46. A 57-year-old woman complains of stress urinary incontinence and pelvic pressure. On exam, she is noted to leak with Valsalva. Relevant pelvic organ prolapse quantification (POP-Q) exam pointsreveal Aa and Ba at -3, Ap at +1, Bp at +2, and C at 0. The correct surgical procedure is a mid-urethral sling:
A. only.
B. with anterior repair.
C. with posterior repair.
D. with anterior and apical vault repair.
E. with posterior and apical vault repair.
Answer= E
Mid-urethral sling is warranted due to visualization of leak with Valsalva. Additionally, POP-Q exam reveals both posterior (Bp +2 notes most distal portion of posterior vaginal wall is 2 cm beyond the hymen) and apical prolapse (C at 0 notes vaginal cuff is at the hymen). The anterior vaginal wall is well supported (Aa and Ba -3). A posterior repair and procedure for apical prolapse is indicated.

47. A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:
A. remove intrauterine device.
B. metronidazole for patient.
C. metronidazole for patient and partner.
D. ciprofloxacin for patient.
E. ciprofloxacin for patient and partner.
Answer= B
Bacterial vaginosis results from an alteration of normal vaginal flora with a predominance of Lactobacillus species and high concentrations of anaerobic bacteria. Diagnosis can be confirmed with identification of clue cells, a homogenous vaginal discharge, a vaginal pH > 4.5, and a malodorous fishy vaginal discharge. Risk factors may include multiple sexual partners, a new sexual partner, use of an intrauterine device, and douching. Treating the patient is as effective as treating the patient and partner. Symptoms may recur in 1/3 of patients after treatment. Metronidazole is the treatment of choice.

48. A ten-year-old boy undergoes ureteroscopic stone extraction for a 1 cm right distal ureteral stone. After placing a guidewire, a 6.5 Fr semirigid ureteroscope will not pass easily at the ureteric orifice. The next step is:
A. place ureteral stent and retry three days later.
B. dilate the ureteric orifice.
C. SWL.
D. percutaneous stone extraction.
E. laparoscopic ureterolithotomy.
Answer= B
When the semirigid ureteroscope will not pass easily over a guidewire in a prepubertal child, the next step is to perform a ureteric orifice dilation using either coaxial dilators or balloon dilator. Studies have demonstrated that ureteric dilation at the time of ureteroscopy is safe in children. After dilation, ureteral access sheath may also be used to minimize trauma. If the dilators do not pass easily, then placing a ureteral stent for passive dilation for several weeks is appropriate, but dilation should be tried first to avoid second anesthesia. Flexible ureteroscope is comparable in size (6.9 Fr) to the 6.5 Fr semirigid scope and may not offer any additional advantage in passing it up the ureter. Furthermore, a smaller working channel may make the stone fragmentation and extraction more

difficult. SWL, percutaneous stone extraction, and laparoscopic ureterolithotomy are inappropriate for a distal ureteral stone.

49. A 53-year-old man complains of four months of pain with erections, poor tumescence, and a 30 degree dorsal penile curvature. Physical examination reveals a 1 cm dorsal plaque. The next step is:

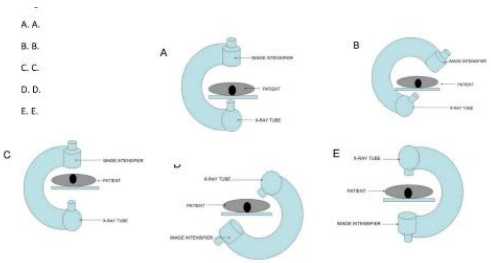
A. reassurance and observation.
B. treatment with sildenafil.
C. intracavernous injection therapy.
D. tunical plication.
E. plaque excision and grafting.

Answer= B

Many think that the clinical incidence of Peyronie's disease is increasing. The increase however may be associated and coincide with the increased use of erection-enhancing medications. Phosphodiesterase type 5 (PDE5) inhibitor medications are not contraindicated in the treatment of Peyronie's disease, while intracavernous injection therapy has been linked to the development of penile fibrosis. There has never been any suggestion that PDE5 inhibitors are in any way directly causally related to the development of Peyronie's disease, nor is there suggestion that their use would worsen the course of Peyronie's disease. Data is emerging to suggest that certain endothelial impairment may be reversed with the initiation of PDE5 inhibitor therapy. This patient has erectile dysfunction (ED) and it is reasonable to treat the ED with sildenafil. Reassurance will not improve his ED and surgical correction is not indicated early in the disease course.

50. A patient is undergoing fluoroscopy for a ureteroscopic procedure. The fluoroscopic set-up which will result in the least amount of scatter radiation to the operating room personnel is illustrated in the diagram labeled:

A. A.
B. B.
C. C.
D. D.
E. E.



Answer= C

The image intensifier should be positioned above the patient and the x-ray tube below the patient to minimize radiation exposure (Images A, B, C). The x-ray tube should be positioned as far from the patient as feasible. (Image C) Angulation of the C-arm to a lateral or oblique position (Images B, D) increase the dose rate due to the increased body mass thickness that must be penetrated, and also brings the x-ray tube closer to the patient.

51. A 36-year-old woman with a horseshoe kidney has a symptomatic 1.8 cm left lower calyceal stone. The next step is:

A. SWL.
B. open nephrolithotomy.
C. ureteroscopic stone extraction.
D. ureteral stent and SWL.
E. percutaneous nephrolithotomy.

Answer= E

Symptomatic lower calyceal stones clear poorly after fragmentation with SWL, especially in horseshoe kidneys. Ureteroscopic fragmentation and stone extraction in these malrotated kidneys can be difficult. Residual stone fragments are unlikely to pass spontaneously and the likelihood of rendering the patient stone-free is limited. Percutaneous renal access can be performed safely through a superior and posterior calyceal puncture. The entry site of the puncture needle is more medial, just lateral to the paraspinous musculature, in comparison to inferior pole punctures in normally positioned kidneys. An inferior calyceal puncture in a horseshoe kidney could be dangerous due to its medial, more anterior and inferior location. Even in thin patients, one may need to utilize longer instruments including flexible cystoscopes, flexible or rigid ureteroscopes, or extra-long nephroscopes. Percutaneous renal access through a superior pole puncture can be performed in a safe fashion and is the most optimal route to render the patient stone free. The only variable identified that decreases the efficacy of PCNL in a horseshoe kidney is the presence of a Staghorn calculus. Stone-free rates are 84% with a primary PCNL and rise to 93% after a second-look nephroscopy.

52. During placement of a two-piece inflatable penile prosthesis, the glans penis is noted to have poor support and minimal movement over the top of the prosthetic with a mild "SST" deformity. The best treatment is:

A. observation and cycling.
B. glansplasty.
C. placement of an additional 1 cm rear tip extender.
D. upsize the prosthesis.
E. convert to a three-piece inflatable prosthesis.

Answer= B

Poor support of the glans penis by cylinder or rod tips leads to a drooping appearance of the glans, in which it appears to "flop" over the prosthesis. This deformity may result from inadequate distal dilation, too short cylinders, or in the case of minor deformity, variations in anatomy where the corpora cavernosum does not extend completely under the glans. For a severe deformity, definitive correction involves removing both cylinders, perforating the distal corpora with scissors, resizing, and then inserting longer cylinders or the same cylinders with longer rear tip extenders. For mild defects, like in this patient, dorsal plication of the glans back onto the shaft of the penis (glansplasty) is preferable when there are minor but otherwise bothersome degrees of poor glanular support. Changing to a three-piece prosthesis is not needed and adding a larger cylinder (upsizing) could result in pain and buckling.

53. A 50-year-old woman has azotemia and an obstructed solitary kidney. A percutaneous nephrostomy is placed and urine output is initially 200 ml/hr. She receives I.V. fluids. Her renal function improves over the next four days but the diuresis is now more pronounced. Vital signs and neurocognitive exam are normal. The next step is:

A. oral vasopressin.
B. I.V. vasopressin.
C. hydrochlorothiazide.
D. decrease I.V. fluids.
E. increase I.V. fluids.

Answer= D

This patient's persistent, post-obstructive diuresis is most likely iatrogenic. The brisk diuresis that accompanies release of obstruction may represent a physiologic response to the expansion of extracellular fluid volume occurring during the period of obstruction in many patients. This may be perpetuated by overzealous administration of intravenous fluids after relief of the obstruction. It would be safe in this clinically stable, neurologically intact patient to decrease intravenous fluids, allow her free access to fluid, and observe her closely for signs of hypovolemia and electrolyte imbalance. Hydrochlorothiazide is a diuretic and may worsen her diuresis. Vasopressin (ADH) acts to increase water

reabsorption at the collecting duct and is not indicated in this scenario.

54. A 22-year-old man with history of NSGCT completed chemotherapy that included ifosfamide two weeks ago. He has weakness and lethargy. Serum labs reveal Na 137mEq/l, Cl 135mEq/l, CO2 12mEq/l, K 2.7mEq/l, and creatinine 0.9 mg/dl. Blood gas reveals serum pH 7.3. Urinalysis reveals pH7.6. The next step is:

A. I.V. Ringer's lactate.
B. I.V. D5W with 20mEq/l KCL.
C. I.V. hydrocortisone.
D. oral spironolactone.
E. oral potassium citrate.
Answer= E

The clinical presentation is that of weakness and lethargy following the course of chemotherapy accompanied by significant hypokalemia and hyperchloremic metabolic acidosis. Despite the acidosis, his urinary pH is alkaline, indicating inability to acidify urine. The most likely diagnosis is a drug-induced renal tubular acidosis (RTA) type I (distal), in which there is a failure of ammonium secretion in the distal tubule. The type II (proximal) RTA represents a defective reabsorption of bicarbonate in the proximal tubule. Although distal RTA can be genetic, this most likely represents an acquired condition due to ifosfamide chemotherapy. The treatment is oral potassium and bicarbonate supplementation. I.V. fluid hydration is unnecessary with no evidence of dehydration, and normal creatinine with no evidence of contraction alkalosis. The use of steroids or diuretics would be detrimental to this patient.

55. A 64-year-old man has a radical cystectomy and ileal neobladder. Ten days after surgery, 2.5 liters of bilious fluid drains from his incision over 24 hours. He is otherwise stable. The next step is:

A. observation.
B. discontinue diet and start TPN.
C. oral loperamide.
D. oral octreotide.
E. surgical repair.
Answer= B

This patient has developed a high output (> 500 ml per day) enterocutaneous (EC) fistula. Management of high output EC fistula when they develop is extremely challenging and complex due to significant fluid and electrolyte loss and coexisting malnutrition. Emergent surgical repair in this patient would be highly technically demanding due to significant perisurgical reactive fibrosis with healing greatly impaired by concurrent malnutrition. Indeed up to 70% of patients with high output fistulae have concurrent malnutrition with documented hypoalbumemia, the latter of which is a significant prognostic factor. The loss of large amounts of fluid in the immediate postoperative period can lead to severe dehydration with oral intake frequently worsening the high output. The immediate step is to discontinue oral intake and initiate TPN. Agents that can decrease bowel motility (loperamide, diphenoxylate/atropine, etc.) can be helpful if the high output continues after the initial steps are taken. Although octreotide can be used to decrease pancreatic secretions, prospectivedouble blinded placebo controlled trials demonstrated no significant reduction in postoperative EC fistula fluid losses nor did they find an increased rate of spontaneous EC closure. It should therefore only be used if high EC fistula outputs continue after initial measures fail.

56. A 26-year-old infertile body builder with a five year history of heavy anabolic steroid use is azoospermic 12 months after discontinuing all steroids. His serum testosterone is 150 ng/dl and FSH is normal. The next step is:

A. observation.
B. testosterone replacement.
C. hCG.
D. testicular biopsy.
E. clomiphene citrate.
Answer= C

The non-medical use of anabolic steroids by athletes is potentially a significant cause of infertility in male adolescents and adults. It has been estimated that 3-12% of male athletes of high school age in the United States have used steroids. Infertility associated with anabolic steroid use commonly presents as oligospermia or azoospermia along with abnormalities of sperm motility and morphology. As with many of the other steroid side effects, the semen parameter deficits are thought to be reversible and consequently, the discontinuation of all steroids is the first course of therapy. Unfortunately, some steroid abusers develop a chronic anabolic-induced hypogonadism syndrome/state. Successful gonadotropin (hCG) replacement is the best therapy when this occurs. This patient has already been off steroids with no return of sperm after one year, therefore, continued observation is not likely to work at this point and a trial of hCG therapy is indicated. Testosterone supplementation will only continue to suppress the central axis (decrease FSH and LH release) and perpetuate the problem. Clomiphene citrate might work by blocking testosterone and estradiol feedback on the central axis and stimulate LH/FSH release, but will not be as effective as hCG. Testis biopsy is not needed at this time, but might be needed if the patient does not respond to hormonal manipulation and maturation arrest is suspected.

57. A two-day-old boy has gross hematuria. He was born at 38 weeks gestation via Caesarian section for failure to progress. Ultrasound shows bilaterally enlarged kidneys without cysts or hydronephrosis and a normal bladder. Hemoglobin and platelet count are low. The next step is:

A. observation.
B. I.V. hydration.
C. anticoagulation.
D. VCUG.
E. CT angiogram.
Answer= B

Renal venous thrombosis is suggested in the neonate with enlarged kidneys, hematuria, anemia, and thrombocytopenia, often with a history of prolonged delivery and prematurity. Thrombosis is peripheral and initial therapy should be aimed at support and I.V. fluid administration in order to treat the underlying dehydration. Observation would be inadequate with the thrombotic phenomenon likely to escalate in severity with extension of the thrombus. Anticoagulation is indicated if the process extends beyond the renal vein(s). The clinical scenario presented and the imaging reported of bilaterally enlarged kidneys on ultrasound are sufficient to make the diagnosis and no further imaging is necessary.

58. A 38-year-old woman developed a 10 mm vesicovaginal fistula following a complicated hysterectomy. She has failed two prior attempts at repair, one transvaginally using a Martius flap and the other transabdominally using an omental flap. Upper tracts are normal. The next step is:

A. cystoscopy, fulguration of the fistula tract, and suprapubic tube drainage.
B. cystoscopy with fibrin glue application to the fistula.
C. repeat vaginal repair with contralateral Martius fat pad graft.
D. abdominal repair with rectus muscle interposition.
E. ileal conduit.
Answer= D

This patient has failed two previous attempts at fistula closure following a complicated surgery. One would expect significant scarring in her pelvis and anticipate a difficult dissection for

exposure of the fistula. Although cystoscopy and fulguration of the fistula tract is appealing for its surgical ease and is associated with a high rate of success (> 66%) for fistula < 7 mm in size, when used as either a primary or secondary treatment modality, it has no role in the management of large > 7 mm vesicovaginal fistula. Retrograde endoscopic injection of fibrin glue is a minimally invasive approach that may avoid the morbidity of an open surgery. It has been used to close complex fistulas up to 15 mm in size. Although short term outcomes less than one year are encouraging, approximately 75% successful long-term follow-ups reveal the success of this technique breaks down with time. Whether late break downs can be successfully retreated with fibrin glue injection remains to be clarified. Clearly, with each subsequent surgery, the likelihood of successful repair decreases. Optimal success is achieved with a tension-free primary bladder closure with an interpositional graft between the bladder and vaginal vault. Of the choices, the abdominal approach with rectus muscle graft interposition would provide the best technical option and be considered the gold standard in a patient who has undergone repeated failed attempts at vesicovaginal fistula closure. An ileal conduit is not indicated in this otherwise healthy young woman.

59. A 19-year-old man has painful severe left scrotal swelling after being kicked. The right testicle is palpably normal, but the left testicle and epididymis are nonpalpable secondary to a left hemiscrotal hematoma. The next step is:

A. observation.
B. nuclear medicine scan.
C. MRI scan.
D. testicular ultrasound.
E. surgical exploration.
Answer= E

The history and physical examination of this patient is highly suspicious for a testis fracture. Immediate exploration is indicated without the need for scrotal imaging for a definitive diagnosis. Indeed, ultrasonography should not deny or delay surgical exploration if the physical examination findings dictate a possible fracture. The overall accuracy of ultrasonography for detection of traumatic testis fracture has been found to be highly operator dependent with both significant false positive and false negative rates found in the published literature. MRI scan has not been extensively studied, is costly, and could delay definitive treatment. Nuclear medicine scan will delay diagnosis and will not add useful information.

60. A four-year-old girl with bilateral grade 3 VUR has recurrent breakthrough UTIs despite continuous antibiotic prophylaxis. She undergoes a bilateral ureteroneocystostomy. According to the 2010 AUA Guideline on vesicoureteral reflux, the required step in postoperative management is:

A. observation, postoperative imaging only required if additional UTIs occur.
B. renal ultrasound.
C. VCUG.
D. DMSA renal scan.
E. MAG-3 diuretic enhanced renal scan.
Answer= B

According to the most recently published AUA Guideline for the Management of VUR, the required step after an open-robotic surgical intervention for VUR is renal ultrasound. Ureteral obstruction can be clinically silent, and therefore, the absence of ureteral obstruction must be documented. Based on the rigorous meta-analysis performed on the available literature, the use of postoperative VCUG following an open robotic ureteral reimplantation is considered optional. Renal ultrasonography obtained postoperatively will reveal Society of Fetal Urology (SFU) Grade 2 or higher hydronephrosis in approximately 25% of patients one month after a ureteral reimplantation and in 15% of patients three months after a ureteral reimplantation. The exact percentage of patients with postoperative hydronephrosis is dependent upon the percentage of patients with preoperative hydronephrosis, and the percentage of patents with preoperative grade of 4-5/5 VUR. If SFU Grade 2 or higher, hydronephrosis was noted preoperatively, approximately 60% resolve theirhydronephrosis by three months, 30% improve, and the remainder are unchanged to slightly worsened. MAG-3 renal scan and VCUG can be obtained in individuals with persistent or worsening hydronephrosis. Evaluation of these patients will reveal persistent VUR in 4-8%, ureteral obstruction and/or bladder dysfunction (noncompliance) noted to be the cause of the hydronephrosis in approximately 1-2%. It is noteworthy that following injection of a bulking agent for treatment of VUR both a VCUG along with a renal ultrasound is recommended. DMSA scan is optional if additional febrile UTI's should occur.

61. During vaginal repair of a high-riding post-hysterectomy vesicovaginal fistula, the easiest tissue to interpose as a flap is:

A. anterior peritoneum.
B. posterior peritoneum.
C. omentum.
D. Martius fat pad graft.
E. gracilis.
Answer= B

Following hysterectomy, a high-riding vesicovaginal fistula (VVF) can often be repaired through a vaginal approach. A simple procedure to augment the repair is harvest of the posterior peritoneum which is often present around the cervical cuff. This can be carried up over the two-layer fistula closure and attached to cover the fistula. Omentum can easily be harvested through a transabdominal approach but is difficult with a vaginal incision. Myocutaneous and Martius flaps are used with extensive fistulas and are more challenging to harvest and transpose.

62. A 42-year-old man has persistent ileus and fever after left PCNL. Nephrostogram demonstrates that the nephrostomy tube has traversed the colon in its passage into the renal pelvis. The next step is

I.V. antibiotics and:
A. colostomy and drainage of the area.
B. colonic repair and drainage of the area.
C. removal of the nephrostomy tube.
D. withdraw nephrostomy into colon and place ureteral stent.
E. replace nephrostomy tube in a more posterior position.
Answer= D

Colonic perforation is a rare complication of nephrostomy tube placement, occurring in < 1% of patients. It most commonly occurs with lower pole nephrostomy tube placement in patients with malrotated kidneys and/or distended colons. Laparotomy is not necessary in the absence of clinical signs of peritonitis. Separate drainage of the colon and urinary system should resolve this problem.

63. A six-year-old girl has gross hematuria after an MVC. CT scan of the abdomen shows a pelvic fracture and no evidence of renal or intra-abdominal injury. She is hemodynamically stable. Attempts to pass a urethral catheter are unsuccessful. Endoscopy reveals a tear through the bladder neck, vaginal laceration, and anterior rectal wall injury. The next steps are colostomy, suprapubic tube, and:

A. observation.
B. urethral catheter.
C. urethral catheter and extraperitoneal drain.
D. urethral catheter, repair of vagina and rectum.
E. repair of bladder neck, vagina, and rectum.
Answer=E

Bladder neck injuries in the setting of a pelvic fracture are more common in children than in adults and are frequently associated with injuries to the vagina and rectum. Immediate repair of the bladder neck, urethra, and vagina, and diverting colostomy with rectal repair is recommended. Attempts at management with a temporary suprapubic tube, urethral catheters, and delayed repair is associated with a high incidence of persistent bladder neck incompetence, urinary fistula, pelvic abscess, and osteomyelitis. Thus, in a hemodynamically stable patient, immediate repair of all injuries through a combined suprapubic and perineal approach is recommended. Primary diversion with either percutaneous nephrostomy tubes or externalized ureteral stents and urinary catheters is appropriate when the patient is hemodynamically unstable and blood loss is life threatening.

64. A healthy 23-year-old woman has urinary hesitancy, urgency, a slow stream, and incomplete bladder emptying. A pressure flow urodynamic study reveals a compliant bladder with end fill detrusor pressures of 2 cm H2O at 350 ml capacity. There is pelvic floor activity noted on the EMG during voiding, with peak detrusor pressures of 50 cm H2O at the time of peak flow. Total volume voided was 150 ml, peak uroflow of 4 ml/min, average uroflow of 2 ml/min, and postvoid residual of 200 ml. The next step is:

A. physical therapy with biofeedback.
B. urethral dilation.
C. onabotulinumtoxinA injection of sphincter.
D. bladder neck incision.
E. sphincterotomy.
Answer= A

Dysfunctional voiding is characterized by involuntary contraction of the pelvic floor during voiding in a neurologically intact individual. This is clearly demonstrated by the increased EMG activity during voiding seen on this pressure flow urodynamic tracing. Treatment generally starts with conservative measures including pelvic floor physical therapy with biofeedback. Other theoretical options to consider include pharmacologic therapy (Valium or Baclofen) to relax the external sphincter. Someauthors have reported success with the use of alpha-blockade, but theoretically, one would not expect an improvement in voiding with a medication that would more likely affect the internal sphincter/bladder neck than the pelvic floor. Urethral dilation is not widely advocated. OnabotulinumtoxinA injection and sphincterotomy, while targeting the proper area, would be very aggressive and certainly not recommended in a neurologically healthy patient as a first line treatment. Bladder neck incision would not treat pelvic floor dysfunction.

65. The primary effect of parathyroid hormone (PTH) is to facilitate:

A. 1,25-dihydroxyvitamin D3 activity on the enteric epithelium.
B. calcium reabsorption in the renal tubule.
C. enzymatic activity of 25-hydroxylase.
D. conversion of 7-dehydroxycholesterol to Vitamin D3 (cholecalciferol).
E. 1,25-dihydroxyvitamin D3 activity on the renal tubule.
Answer= B

Calcium homeostasis involves four key components: serum calcium, serum phosphate (binds calcium thereby blocking calcium bioavailability), 1,25-dihydroxyvitamin D3, and parathyroid hormone (PTH). The major target organs for PTH action are the kidneys, skeletal system, and intestine. The primary effect of PTH is in the kidney, where it will act to block phosphate reabsorption in the proximal tubule (i.e., increase phosphate excretion) and promote calcium reabsorption in the ascending loop of Henle, distal tubule, and collecting tubule. PTH promotes bone resorption with subsequent calcium release. The final function of parathyroid hormone (PTH) is by activation of the enzyme 1-hydroxylase in the proximal tubules of the kidney. The enzyme 1-hydroxylase is a key component in the metabolism of vitamin D3 (cholecalciferol). Vitamin D3 (cholecalciferol) is formed in the skin when a cholesterol precursor, 7-dehydroxycholesterol, is exposed to ultraviolet light. Activation of vitamin D3 occurs when the substance undergoes 25-hydroxylation in the liver and 1-hydroxylation in the kidney. The enzyme 1-hydroxylase converts 25-hydroxyvitamin D3 to its most active metabolite, 1,25-dihydroxyvitamin D3. The primary action of 1,25-dihydroxyvitamin D3 is to promote gut absorption of calcium by stimulating formation of calcium-binding protein within the intestinal epithelial cells.

66. The best way to identify a ureter that proves difficult to locate during the course of an extravesical reimplant is to:

A. identify the vas deferens and follow this laterally.
B. search ventral to the obliterated umbilical artery.
C. dissect along the ventral surface of the iliac vessels.
D. search the dorsal surface of the mobilized peritoneum.
E. dissect the lateral surface of the bladder.
Answer= C

In smaller patients with little perivesical fat and less pelvic vascular development, finding the ureter extravesically is fairly straight forward. For older patients and unusual cases, this can be challenging. The ureter courses dorsal to the obliterated umbilical artery, so searching its ventral surface will not be effective. Finding the vas deferens is difficult and may result in damaging it, so this is also not advisable. The ureter may occasionally be adherent to the peritoneum as it is dissected, making this a low yield place to look initially. Extensive dissection of the bladder should be avoided as it may increase the risk of postoperative voiding dysfunction and urinary retention, especially if bilateral reimplant is performed. Dissecting slightly higher up to the level of the iliac vessels, one should be able to find the ureter as it courses on the ventral surface of both the artery and vein. It can then be followed distally to complete the procedure.

67. A 37-year-old woman has urinary urgency that interrupts her work day. Urinalysis is normal. She does not wish to take medications. In addition to avoiding dietary bladder irritants, she should:

A. void as soon as she feels the urge.
B. perform repetitive rapid pelvic contractions (quick flicks) when she has a sense of urgency.
C. perform slow, sustained pelvic floor contractions multiple times a day.
D. obtain a urine culture.
E. use an anti-incontinence pessary.
Answer= B

Rapid short pelvic contractions (termed, "quick flicks") have been shown to decrease bladder overactivity and urinary urgency. This treatment is combined with teaching the individual to delay voiding in response to the urge to void. The principles behind these bladder drills are an attempt to "retrain" the bladder to overcome the voiding urgency. Patients are taught not to void "just in case" or when the urge hits, but rather to try to delay the void. Slow sustained pelvic floor contractions are utilized in the treatment of stress incontinence and are not as helpful in patients with urinary urgency. With a single negative urinalysis, a repeat urinalysis is reasonable, but a routine culture is not necessary at this point if the urinalysis remains negative. For persistent irritative symptoms, consideration of mycoplasma/ureaplasma cultures, and/or cystoscopy if the patient would have a history of tobacco usage may be reasonable. An anti-incontinence pessary would not be helpful for urgency incontinence and might actually exacerbate the symptoms.

68. Patients with cystine stones unresponsive to hydration and alkalization are best treated with:

A. N-acetylcysteine.
B. tris-hydroxymethyl amino methane (THAMTM).
C. alpha-mercaptopropionylglycine.
D. penicillamine.
E. acetohydroxamic acid.
Answer= C
Alpha-mercaptopropionylglycine (alpha-MPG) is an oral agent, first introduced in 1968, which reduces cystine stone formation. Approximately 25% of the oral dose appears in the urine and like penicillamine, participates in thiol-disulfide exchange with cystine, thus increasing the latter's solubility. Alpha-MPG appears to be as effective as penicillamine in reducing cystine excretion and significantly reduces the individual stone formation rate, while entailing less significant toxicity. Nacetylcysteine is not effective orally. Tris-hydroxymethyl amino methane is only used for percutaneous dissolution. Acetohydroxamic acid inhibits bacterial urease and is not indicated for cystine stones.

69. Two weeks following a circumcision, a newborn has progressive swelling and ballooning of the penile skin with voiding. Physical exam reveals a trapped penis in which the glans is not visible and the overlying skin cannot be reduced. The next step is:
A. observation and parental reassurance.
B. topical steroid cream.
C. topical anesthetic and manual retraction of penile skin.
D. dorsal slit.
E. revision circumcision.
Answer= B
Newborns may have a buried penis in which there is poor fixation of the overlying skin at the base of the penis. When they are circumcised with a newborn clamp technique, a trapped penis can develop in which the healing skin edges migrate distally over the glans, which in turn can cause an obstructing cicatrix. Resultant retention of voided urine can cause of ballooning of the penile skin. In severe cases, this can also give rise to significant infections and possible urinary retention. Conservative management with a topical steroid ointment (0.05-0.1% betamethasone) for six weeks will result in resolution of the cicatrix and spontaneous retraction of the overlying skin in up to two thirds of patients. In unresponsive cases or patients with more acute problems such as infection or retention, one can consider use of antibiotics and/or surgical intervention with a dorsal slit. If possible, one should avoid performing a revision circumcision in the acute setting because of the poor results that can result from reconstruction of the inflamed skin. Forced manual retraction should be avoided since there will be a significant risk for increased scarring and recurrence.

70. A 48-year-old woman develops recurrent stress urinary incontinence one year following a midurethral sling. Pelvic examination reveals mild urethral hypermobility and urodynamics shows a Valsalva LPP of 40 cm H2O. The next step is:
A. pelvic floor muscle therapy.
B. off-label imipramine.
C. urethral bulking injection therapy.
D. retropubic bladder neck suspension (Burch).
E. pubovaginal sling.
Answer= E
The possibility of the presence of intrinsic sphincter deficiency (ISD) should be considered in patients with a history of recurrent stress urinary incontinence following anti-incontinence surgery. In the face of urethral hypermobility, a retropubic suspension (e.g. Burch) may be an option, but a pubovaginal sling is more effective and durable for ISD. Injection therapy would also be reasonable, but will likely not be as durable as a sling procedure in this relatively young woman. Pelvic floor muscle therapy is a consideration but is known to be less effective than surgery and is best used in patients with mild leakage. Imipramine is off-label and has the potential to cause cardiac effects. Although it may improve her continence, it is also unlikely to result in complete resolution of her symptoms.

71. A 26-year-old man has recurrent groin abscesses. Rectal examination is normal. He has a good urinary stream. The most likely diagnosis is:
A. syphilis.
B. inflammatory bowel disease.
C. hidradenitis suppurativa.
D. chancroid.
E. granuloma inguinale.
Answer= C
Hidradenitis suppurativa is an inflammatory process involving the apocrine glands, most commonly in the groin, axillae, and buttock or below the breasts. They are sterile abscesses. Old scars and sinus tracts are common. Fistulae tracts and perineal abscesses are rare findings in inflammatory bowel disease. Syphilis and chancroid both present with superficial ulcerations. Granuloma inguinale presents with painful lymphadenopathy without abscesses.

72. The nerve that is most likely to be injured during a psoas hitch for a tapered ureteral reimplantation is the:
A. obturator.
B. ilioinguinal.
C. genitofemoral.
D. femoral.
E. iliohypogastric.
Answer= D
The femoral nerve is of L2-L4 origin and has both motor and sensory components, providing sensation to the anterior thigh and motor innervation to the extensors of the knee. The femoral nerve travels within the belly and exits through the lateral aspect of the psoas muscle to pass under the ilioinguinal ligament. There are two potential injuries to the femoral nerve during a psoas hitch: the nerve can become entrapped from a suture placed at right angle to the muscle fibers and the direction of the nerve, or if performed by an open approach, the blades of a retractor can compress the psoas muscle and can result in a femoral nerve palsy. The ilioinguinal and genitofemoral nerves are easily identified during exposure for the psoas hitch and are readily mobilized away from the operative field.

73. The primary effect of intradetrusor onabotulinumtoxinA is to inhibit release of acetylcholine from:
A. presynaptic afferent nerves.
B. postsynaptic afferent nerves.
C. presynaptic efferent nerves.
D. postsynaptic efferent nerves.
E. sympathetic efferent nerves.
Answer= D
The primary target of onabotulinumtoxinA treatment is inhibition of acetylcholine release from postsynaptic parasympathetic efferent nerves to the detrusor muscle, resulting in transient paralysis of the detrusor muscle. The efficacy of the treatment, however, exceeds that of pure detrusor paralysis and is associated with a significant reduction in bladder sensation. The decrease in the afferent sensation (urgency) is due to localized inhibition of detrusor muscle ATP, substance P production along with a reduction in activity of afferent axonal capsaicin and purinergic receptors. The overall effect is a profound inhibition of both efferent acetylcholine release (primary) and interference with afferent neuronal mediators and receptors (secondary).

74. Five days after intercourse, a 40-year-old man develops a painful necrotic penile ulcer and painful inguinal lymphadenopathy. Gram stain of an exudate from the lesion

reveals gram-negative coccobacilli. Dark-field examination and Tzanck smears are negative. The treatment of choice is:
A. penicillin.
B. tetracycline.
C. acyclovir.
D. azithromycin.
E. sulfisoxazole
Answer= D
This patient has chancroid. According to the CDC, the drug of choice is a single dose of azithromycin (1 gram p.o.). Alternatively, erythromycin 500 mg p.o. q.i.d. for seven days orceftriaxone 250 mg I.M. once can be effective. The other antibiotics will not be effective to eliminate the organism which is Haemophilus ducreyi. Acyclovir is effective against the herpes virus.

75. A 32-year-old man with a T5 spinal cord injury develops profuse sweating, hypertension, and bradycardia during urodynamic evaluation. The bladder is emptied but his symptoms persist with a blood pressure of 170/100 mmHg. The next step is to administer:
A. oral nifedipine.
B. sublingual nifedipine.
C. transdermal nitroglycerin, above the level of injury.
D. I.V. atropine.
E. I.V. hydralazine.
Answer= C:
Autonomic dysreflexia (AD) is most commonly seen in patients with spinal cord injury levels above T8. It is an exaggerated sympathetic nervous system response to afferent visceral stimulation, manifest with sweating, headache, hypertension, reflex bradycardia, and flushing above the level of the spinal cord lesion. The normal BP in para and quadriplegics is low, usually 90-110 mmHg systolic. Elevation with autonomic dysreflexia symptoms classically begin with a 20 mmHg rise above baseline, well within normal range for a neurologic intact individual. If BP is > 120 mmHg and patient is symptomatic, presumed autonomic dysreflexia is present. Initial therapy should focus on the removal of inciting factors. In this case, that would include emptying of the bladder and removal of all urodynamic catheters. If the symptoms persist and systolic pressure remains elevated but lower than 150 mmHg, then evaluation for and treatment of fecal impaction, the second most common cause of AD after the bladder, is recommended. However, if the systolic pressure remains above 150 mmHg after bladder emptying and catheter removal, then use of a rapid-onset, short-acting antihypertensive is recommended while the cause of AD is investigated. Nitropaste 2%, applied .5-1 inch above the level of the lesion (vasoconstriction occurs below the level of the lesion and may interfere with the drugs absorption) is preferred due to its ability to be wiped free if rebound hypotension occurs. Alternatively, Nitroglycerin 0.4 mg sublingually, are the two first line drugs of choice in the outpatient setting. The physician must make sure the patient has not used a PDE-5 inhibitor for erectile dysfunction in the past 24 hours, due to concern for rebound hypotension. If a sildenafil agent has been used within 24 hours, Captopril 25 mg chewed or given sublingually becomes the drug of choice. Nifedipine used to be recommended as primary treatment or prophylactic agent for AD, however, because of several adverse, rebound hypotensive crisis resulting in stroke or MI after its use, the Joint commission for treatment of High Blood Pressure and National Spinal Cord Injury committees have discouraged its use and it has been banned for treatment or prevention of autonomic dysreflexia in some hospitals. If the blood pressure remains elevated and does not respond to oral therapy I.V., hydralazine is an option, however, BP may bequite labile after its use with both hypotension and/or rebound hypertension, the patient will require hospital admission with further monitoring. In the outpatient setting, when autonomic dysreflexia is triggered and successfully treated, it is recommended that the patient should be monitored for resumption of hypertension for a minimum of two hours. If AD recurs, hospitalization with monitoring for 24 hours is recommended, if not, the patient can be discharged from the outpatient setting. Recommendations to prevent autonomic dysreflexia preceding cystoscopy or urodynamic evaluations are to use: terazosin 5 mg, prazosin 1 mg, or tamsulosin 0.8 mg the night before the exam, or alternatively at the time of the exam place Nitropaste 2% .5 inch (if not on sildenafil) or

76. A 70-year-old obese man has difficulty walking one day following robotic cystectomy and pelvic lymphadenectomy. On examination, his extremities appear normal with slight decreased sensation of the anteromedial thigh and weakness bilaterally with hip flexion. The most likely cause for his symptoms is injury to which nerve:
A. obturator.
B. femoral.
C. lateral femoral cutaneous.
D. sciatic.
E. genitofemoral.
Answer= B
The patient's motor and sensory deficits are classic presentations for femoral neurapraxia, thought to be due to entrapment by the inguinal ligament in patients whose hips are hyperextended during positioning for robotic pelvic procedures. The femoral nerve has both sensory (anteromedial thigh) and motor components essential for hip flexion. The obturator nerve governs adduction of the thigh (motor) and sensation to medial aspect of thigh (sensory). The lateral femoral cutaneous nerve is purely a sensory nerve innervating the lateral thigh. The sciatic nerve has sensory (posterior calf) and motor (posterior thigh muscle groups) branches. The genitofemoral nerve supplies sensation to the scrotal skin and cremaster muscle (motor).

77. A 55-year-old man has a 16 Fr urethral catheter that cannot be removed because the balloon will not deflate. The best way to deflate it is to:
A. inject ether into the inflation port.
B. pass a guidewire down the inflation port.
C. puncture the balloon percutaneously with ultrasound guidance.
D. inject water into the inflation port until the balloon bursts.
E. pass a resectoscope sheath over the cut-off catheter to guide cystoscopic scissors.
Answer= B
If a urethral catheter balloon will not deflate, the first step should be to attempt to place another 2-5ml of fluid into the balloon and reattempt deflation of the balloon. If that fails, the inflation valve should be cut. This will allow access to the inflation channel. A guide or glidewire passed down the inflation channel will almost always clear the passage and let the water out without breaking the balloon. The other choices listed will result in breaking the balloon, often leaving a floating fragment that cannot be voided or irrigated out and can possibly lead to bladder stone formation. If rupture of the balloon is performed, cystoscopy is recommended to evaluate and retrieve any fragment left behind.

78. A 13-year-old boy with prune belly syndrome and chronic hydronephrosis is obtunded. He has a normal blood pressure and pulse, normal hematocrit, and appropriate urine output. Urinalysis is suspicious for UTI with gram negative rods on Gram stain. The lab value most likely to reveal the source of his obtundation is serum:
A. sodium.
B. magnesium.
C. bicarbonate.
D. ammonia.
E. lactate.
Answer= D

This scenario is concerning for UTI with an urea-splitting gram-negative organism in a urinary tract with significant urinary stasis. This can occur in prune belly syndrome children or any other patient with urinary stasis or obstruction. Urea in the urine is split into large amounts of ammonia which is absorbed systemically and may result in encephalopathy or even coma at high levels. Treatment is support, urinary drainage, and antibiotic administration. The vital signs, urine output, and normal hematocrit in the current patient argue for relative normovolemia and are not consistent with sepsis or other illness. Although perturbations of other electrolytes, bicarbonate, or lactate may occur, significant abnormality of one or more of these should lead to hemodynamic instability if severe enough to lead to an obtunded state.

79. Elevation of the serum testosterone and LH levels associated with a normal FSH level is most frequently associated with:
A. puberty.
B. Klinefelter syndrome.
C. secondary testicular failure.
D. Sertoli-cell-only syndrome.
E. androgen resistance.
Answer= E
Androgen resistance or testicular feminization syndrome presents with a wide range of phenotypes of complete female external genitalia to men with normal genitalia and abnormalities of spermatogenesis. This X linked disorder is due to an abnormality of the androgen receptor. Testosterone production and secretion by the Leydig cells is normal, but the target organs including the pituitary gland do not recognize it due to faulty receptors. Therefore, LH secretion is increased because of the apparent lack of testosterone while FSH is unaffected since it is controlled by inhibin. Puberty would have normal testosterone, LH, and FSH. Klinefelter Syndrome and Sertoli Cell Only Syndrome would have elevated FSH, LH, and low testosterone. Secondary testicular failure can have a multitude of etiologies with the end result being low testosterone. The FSH and LH may be high or low.

80. A 23-year-old man has a persistent 5 cm interaortocaval mass after three cycles of BEP for left NSGCT. Serum tumor markers are normal. During RPLND, the mass is densely adherent to the aorta and vena cava. An incisional biopsy of the mass reveals fibrosis. The next step is:
A. complete RPLND.
B. sample para-aortic and paracaval nodes.
C. completely resect residual mass.
D. terminate RPLND and follow tumor markers.
E. terminate RPLND and give XRT.
Answer= A
Following chemotherapy for retroperitoneal metastases from non-seminomatous germ cell tumors, teratoma will be found in approximately 40% of patients. When this is found, complete resection is mandatory for a number of reasons. Although the teratoma may be benign, continued growth of the tumor can lead to significant morbidity and the tumor can become unresectable. Additionally, complete retroperitoneal nodal evaluation will detect foci of residual cancer in up to 20% of patients. Thus, complete RPLND is necessary.

81. A 66-year-old woman is undergoing abdominal surgery for diverticulitis when the surgeon notices a solitary enlarged interaortocaval lymph node in the upper abdomen and removes it for biopsy. The biopsy reveals RCC. The most likely source of this disease is:
A. the left kidney.
B. the right kidney.
C. either kidney.
D. pelvic kidney.
E. horseshoe kidney.
Answer= B
The interaortocaval nodes primarily drain the right kidney. The left kidney drains to the interaortocaval nodes only in advanced disease.

82. Compared to placebo, monotherapy with Serenoa repens (saw palmetto) for men with bothersome LUTS due to BPH is likely to result in:
A. improved AUA symptom index.
B. improved maximal flow rate.
C. decreased prostate size.
D. lowered risk of acute urinary retention.
E. similar rate of adverse events.
Answer= E
The use of over-the-counter phytotherapy continues to be a popular therapy for the treatment of male LUTS due to BPH. However, there are a limited number of well done placebo-controlled trials evaluating its efficacy. The vast majority of these trials suggest that Serenoa repens is no more effective than placebo. No differences are seen in regards to AUA-SI or flow rates. There does not appear to be any decrease in prostate size or evidence that suggests that this drug is able to minimize the risk of progression to acute urinary retention. Initial prostate size does not appear to impact the outcome when Serenoa repens is used. Adverse events are mild and appear to be comparable to placebo.

83. A 55-year-old man has a transrectal biopsy which reveals small cell carcinoma. Metastatic workup is negative. The next step is:
A. radical prostatectomy.
B. LH-RH agonist.
C. cystoprostatectomy.
D. external beam radiation therapy (EBRT).
E. chemotherapy.
Answer= E
Small-cell carcinoma of the prostate carries a very poor prognosis. In most patients, the course is rapidly fatal. Most patients present with rapid onset of symptoms indistinguishable from other causes of bladder outlet obstruction. Systemic constitutional symptoms are reported in about 10% of cases. Chemotherapy in combination with surgery or radiation appears to be the most important component of management. Radiation is ineffective as is surgery alone, since most patients have metastatic disease. These tumors are generally not hormonally sensitive.

84. A newborn girl has a febrile UTI. Her abdominal ultrasound reveals a left duplicated system with a large ureterocele and severe bilateral hydroureteronephrosis. Early intervention is required because of:
A. non-function of the upper pole segment.
B. reflux to the lower pole segment.
C. reflux to the contralateral kidney.
D. increased risk of incontinence.
E. bladder outlet obstruction.
Answer= E
Of all the potential complications of a large ureterocele, bladder outlet obstruction is the most worrisome because it affects both kidneys, leads to recurrent infection, and progressive renal damage. A key indicator of bladder outlet obstruction in this patient is the presence of contralateral hydroureteronephrosis. Non-function of the upper pole system does not require early intervention unless the patient presents with febrile UTI unresponsive to antibiotic therapy. Initial therapy for reflux either into the ipsilateral or contralateral kidney would be managed with continuous antibiotic prophylaxis as first line therapy. Incontinence occurs in a small percentage of children with ureteroceles, usually due to a congenital defect in the

bladder neck due to distortion from the ureterocele, and is best managed in the older child.

85. A 64-year-old man with erectile dysfunction and a history of coronary disease is taking tadalafil 5 mg daily. During sexual activity, he develops angina. The next step is:
A. stop sexual activity and rest.
B. stop sexual activity and seek emergency treatment.
C. take nitroglycerin only if it has been at least 24 hours since his last tadalafil dose.
D. take nitroglycerin only if it has been at least 48 hours since his last tadalafil dose.
E. take nitroglycerin only in a medically monitored setting.
Answer= B
Patients who are taking PDE5 inhibitors cannot concomitantly use nitrates due to the potential risk of severe hypotension. For the short acting PDE5 inhibitors (vardenafil, sildenafil, avanafil), medical personnel should not use nitrates for at least 24 hours and for 48 hours with the long acting PDE5 inhibitor, tadalafil. Men who have taken PDE5 inhibitors and develop angina during sexual activity (which has a greater risk of bringing on a non-fatal MI) should stop sexual activity and seek emergency medical therapy immediately.

86. A 42-year-old woman has crampy abdominal pain three months after undergoing a continent cutaneous urinary diversion. She is afebrile and has a WBC of 7,500/cu mm. Her abdomen is mildly distended, diffusely tender, and bowel sounds are present. KUB reveals nonspecific small and large bowel gas patterns. The next step is:
A. I.V. fluids and nasogastric suction.
B. exploratory laparotomy.
C. pouchogram.
D. CT urogram.
E. pouch catheterization.
Answer= E
Early after continent urinary diversion, many patients misinterpret distension of the pouch due to urine and mucus as diffuse abdominal pain. This patient's KUB, normal WBC, normal bowel sounds, and lack of fever do not suggest obstruction or leakage from the bowel reanastomosis or the urinary pouch. The first and simplest measure is to catheterize and drain the pouch to determine if the symptoms are relieved. Only if the pain persists are some or all of the other measures necessary to exclude other postoperative complications such as ileus, pouch leak or rupture, or urinary tract obstruction. Patient education on symptoms is paramount to prevent unnecessary interventions.

87. A 17-year-old girl with a history of an augmentation cystoplasty undergoes a pubo-vaginal sling procedure for persistent stress incontinence. On postoperative day three, she has left flank pain and increased drainage from the incision (creatinine of drainage is 9 mg/dl). CT scan reveals new onset of left hydroureteronephrosis and left perivesical fluid collection, and CT cystogram reveals no extravasation of contrast from bladder. The next step is:
A. cystoscopy, retrograde pyelogram, and stent placement.
B. percutaneous nephrostomy.
C. removal of sling.
D. open ureteral repair and removal of sling.
E. ureteroneocystostomy.
Answer= A
Although ureteral injuries are uncommon during transvaginal suspension procedures, the ureter occasionally can be injured or obstructed by the surgical dissection or suspension suture. If recognized intraoperatively, the suspension suture should be removed and a ureteral stent placed. If this is recognized postoperatively, a retrograde pyelogram will define the extent of the injury and retrograde stent placement attempted. If stenting is not successful, antegrade stenting is advised. Open repair is advised when retrograde or antegrade ureteral stent placement cannot be performed. Ureteroneocystostomy is performed only when significant devitalization of the ureter occurs.

88. A 61-year-old man develops complete erectile dysfunction following radical prostatectomy and has placement of a two-piece inflatable penile prosthesis. Three months after implantation, he complains of decreased penile size and inability to satisfy his partner. Examination demonstrates a functional prosthesis. The best treatment is:
A. referral to a sex therapist.
B. combination therapy with sildenafil.
C. combination therapy with intraurethral alprostadil.
D. upsize to a larger two-pieced inflatable prosthesis.
E. remove and implant a three-piece inflatable prosthesis.
Answer= A
Over 85% of patients and 70% of partners rate satisfaction following placement of penile prosthesis as "very high". That being said, there are still patients who have significant problems with establishing intimacy following the diagnosis and treatment of prostate cancer. There are also patients who note significant decrease in penile size following radical prostatectomy. In this patient with no problems noted with his implant, evaluation and treatment by a sex therapist would be the best treatment. Combination therapy with a PDE5 inhibitor or alprostadil can increase glanular engorgement but are not FDA-approved and would not necessarily help with partner issues. There is no need to change out the prosthesis for a different device if it has been properly sized and implanted.

89. A healthy 50-year-old man with gross hematuria has a peripherally located 4 cm solid mass in a solitary kidney. The serum creatinine is 1.2 mg/dl. CT scan demonstrates a 1 cm renal vein tumor thrombus. There is no evidence of metastasis. The next step is:
A. angiographic embolization.
B. laparoscopic cryoablation.
C. partial nephrectomy.
D. radical nephrectomy.
E. interleukin-2.
Answer= D
Under usual circumstances, a peripherally located tumor in a solitary kidney is best managed by partial nephrectomy, both for potential cure and to prevent the need for dialysis. However, the presence of a venous thrombus makes complete tumor excision less likely and is associated with a high likelihood of tumor recurrence and poor prognosis after partial nephrectomy. Given the patient's good health, long life expectancy, and episode of gross hematuria, observation is likely to result in further tumor progression, more bleeding or other local symptoms which may require intervention, and potentially metastatic disease. Laparoscopic cryoablation is best used for smaller tumors and will not control the tumor thrombus. Systemic immunotherapy rarely results in a response in the primary tumor and is unlikely to be curative. Thus, the best choice is radical nephrectomy which will result in the need for dialysis. A prolonged disease-free interval would make the patient eligible for subsequent renal transplantation. Selective angioinfarction of the tumor is another alternative which could be used for palliation of the bleeding, but will not be curative.

90. A 32-week-gestation neonate maintained in the neonatal ICU for respiratory difficulties, is found to have candiduria on two successive catheterized urine cultures. He is voiding spontaneously, and his renal and bladder ultrasound is normal. The most appropriate therapy is:
A. observation with repeat urine culture in one week.

B. circumcision.
C. intravesical amphotericin.
D. parenteral fluconazole.
E. parenteral amphotericin.
Answer= D
The incidence of Candidal nosocomia UTIs occurring within neonatal intensive care units is increasing and directly related to the use of parenteral antibiotics. In this select patient population, aggressive treatment of asymptomatic candiduria is required due to a high incidence of subsequent candidemia. Indeed, in some published series, failure to treat asymptomatic candiduria in premature neonates resulted in systemic candidemia in up to 80% of patients. Isolating treatment to the bladder with topical irrigation will not effectively treat the risk of candidemia and parenteral treatment is required. Fluconazole is the treatment of choice in a premature infant when compared to amphotericin because of significantly diminished systemic side effects. Circumcision will not decrease the risk of candidemia.

91. T cell activation requires T cell receptor engagement of antigen presented by major histocompatibility complex (MHC) molecule on the surface of antigen presenting cells (APCs) and:
A. intracellular signal transduction.
B. cell division and proliferation.
C. direct cell-cell interaction with B cells.
D. APC glycoprotein and T cell ligand interaction.
E. interferon-gamma stimulation.
Answer= D
T cell activation requires three signals. First, T cell receptor engages specific antigens presented by MHC molecules on APCs. Without the second signal, the T cell remains functionally inactive. Second, stabilization and costimulation between APC glycoproteins (e.g., CD 40 and CD 80) with their T cell ligands are required. Lastly, cytokine (especially interleukins) stimulation is necessary to complete T cell activation. Although intracellular signal transduction and cell proliferation are integral parts of T cell activation, these steps are not possible without T cell costimulation.

92. A 31-year-old woman had an ileal conduit urinary diversion at age ten years for a neurogenic bladder. She is now ten weeks pregnant. In addition to appropriate obstetrical care, she should have:
A. amniocentesis.
B. a Cesarean section at term.
C. no additional urologic treatment.
D. prophylactic antibiotics.
E. serial renal ultrasounds.
Answer= C
An ileal conduit is not a contraindication to having a successful, normal pregnancy. Unless a specific indication exists, the routine obstetrical care of a pregnant woman with an ileal conduit is the same as that for a woman with no previous urinary tract surgery. Antibiotics are only required if the patient experiences a symptomatic urinary tract infection. There is no required need for Cesarean section and amniocentesis should be reserved for fetal indications. Serial renal ultrasounds would likely show progressive physiologic hydroureteronephrosis of pregnancy, and are not indicated in asymptomatic patients.

93. Diagnostic laparoscopy is performed on a one-year-old boy with a nonpalpable left testicle. The testis is found 3 cm above the internal ring, with a long looping vas deferens and short spermatic vessels. The procedure most likely to result in successful orchiopexy is:
A. laparoscopic orchiopexy with intact spermatic vessels.
B. laparoscopic single stage Fowler-Stephens orchiopexy.
C. clip spermatic vessels and return in six months.
D. open transabdominal orchiopexy.
E. remove laparoscope, administer intramuscular hCG for four weeks, then re-explore.
Answer= C
When the testis is more than 2 cm above the internal ring with no vascular redundancy, it is unlikely that the testis will be able to reach the scrotum without dividing the spermatic vessels. In this situation, staged Fowler-Stephens procedure with division of the gonadal vessels at the first stage has a significantly higher success rate than primary Fowler-Stephens procedure. With the high abdominal position of the testis and short spermatic vessels, the testis is unlikely to reach the scrotum with either a laparoscopic or open transabdominal orchiopexy, which would both be limited by the ability to adequately mobilize the vessels. Although hCG has been used to increase testicular vascularity, there are no documented studies to prove that administration of hCG pre-Fowler Stephen orchiopexy improves testicular viability. Indeed, there is concern that acute hCG stimulation could cause damage to the seminiferous tubules.

94. At twelve months, results of the Trial of Mid-Urethral Slings (TOMUS) showed that retropubic slings compared to transobturator slings have:
A. superior efficacy and greater risk of post-operative voiding dysfunction.
B. superior efficacy and lesser risk of post-operative voiding dysfunction.
C. inferior efficacy and greater risk of post-operative voiding dysfunction.
D. inferior efficacy and lesser risk of post-operative voiding dysfunction.
E. equivalent efficacy and greater risk of post-operative voiding dysfunction.
Answer= E
The TOMUS (Trial of Mid-Urethral Slings) study is a multicenter, randomized equivalence trial sponsored by the Urinary Incontinence Treatment Network (UITN) which evaluated 597 women with SUI who were assigned to undergo treatment either with a retropubic or transobturator midurethral sling. At 12 months, the patients in both groups met the prespecified criteria for equivalence with regard to the objective definition of success (negative stress test, negative pad test, and no retreatment) with 80.8% in the retropubic group and 77.7% in the transobturator group having a successful outcome. Subjective definition of success was defined as a self-reported absence of symptoms, no leakage episodes recorded on diary, and no retreatment. Subjectively, the outcomes between the two groups were similar; 62.2% in the retropubic group and 55.8% in the transobturator. Rates of postoperative voiding dysfunction were higher (2.7%) in the retropubic group compared to the transobturator group (0%).

95. Left inguinal orchiectomy is performed on a 24-year-old man for an embryonal cell carcinoma. AFP is elevated but beta-hCG is normal. On chest x-ray, there is a 5 cm mass in the right lung and an abdominal CT scan shows a 2 cm periaortic adenopathy. After four cycles of platinum-based chemotherapy, AFP has returned to normal, and an abdominal CT scan shows resolution of the retroperitoneal adenopathy. On chest x-ray, the lung mass is still present but has decreased to 3 cm in size. The next step is:
A. retroperitoneal node dissection.
B. salvage chemotherapy with ifosfamide.
C. continue platinum chemotherapy for two more cycles.
D. needle biopsy of the lung mass.
E. pulmonary wedge resection.
Answer= E
Further chemotherapy is not indicated without histologic evidence of residual disease. Although assessment of the retroperitoneal

nodes must be considered, removal of the lung mass by thoracotomy is indicated first. Needle biopsy would be an insufficient sampling method and if this is teratoma, excision of the lung mass would be therapeutic.

96. A six-year-old boy with a history of imperforate anus has persistent diurnal urinary incontinence. Evaluation includes an MRI scan showing the conus medullaris at the L-2 level. Urodynamics show no postvoid residual, a flat filling curve with high volume detrusor overactivity, and normal voiding pressures. These findings suggest:
A. tethering of the spinal cord.
B. vesico-colonic fistula.
C. detrusor-sphincteric dyssynergia.
D. no significant uropathology.
E. intrinsic sphincteric deficiency.
Answer= D
Imperforate anus is accompanied by a high incidence of bony sacral and neurological anomalies that may lead to a neurogenic bladder. On the other hand, diurnal and nocturnal enuresis are common in six-year old. This boy can completely empty the bladder volitionally; i.e., no postvoid residual. There is no evidence of spinal cord tethering with the conus medullaris in the normal position upper border of L-2. A vesico-colonic fistula would be unlikely. The urodynamic study is not suggestive of detrusor-sphincter dyssynergia, and the detrusor overactivity at high volume is unlikely to suggest any serious underlying pathology.

97. A 65-year-old man complains of residual LUTS after prior TUNA. His symptoms are unchanged after the initiation of tamsulosin. He has a 30 gram benign prostate and cystoscopy reveals median lobe enlargement. The pressure-flow urodynamic study reveals no evidence of detrusor overactivity, with an end fill detrusor pressure of 3 cm H2O at a maximum capacity of 450 ml. He voids with a synergistic curve pattern with detrusor pressure at the time of peak flow of 120 cm H2O. Peak flow is 8 ml/sec, average is 4 ml/sec, and total volume voided is 400 ml PVR of 50 ml. The next step is:
A. dutasteride.
B. solifenacin.
C. onabotulinumtoxinA injection into the detrusor.
D. TUIP.
E. TURP.
Answer= E
The urodynamics are consistent with bladder outlet obstruction. The patient has normal bladder compliance, no evidence of detrusor overactivity, and during the pressure-flow study, elevated detrusor pressures with a low flow. Therefore, treatments aimed at overactive bladder (solifenacin and onabotulintumtoxinA) would not be indicated. This patient does not have a large prostate on exam; thus, dutasteride is not indicated. A TUIP would not be appropriate in light of the enlarged median lobe; therefore, TURP would be the appropriate therapy for this patient's LUTS.

98. Deletions of the short arm of chromosome 3 occur most frequently in association with:
A. papillary RCC.
B. angiomyolipoma.
C. renal medullary carcinoma.
D. oncocytoma.
E. clear cell RCC.
Answer= E
Deletions of the short arm of chromosome 3 are characteristic of clear cell (conventional type) RCCs, which are seen in sporadic cases of renal cell carcinoma and those associated with von Hippel-Lindau disease. The short arm of chromosome 3 is the location of the VHL gene. Type 1 papillary renal cancers are associated with mutations of the c-met proto-oncogene located on chromosome 7. Type II papillary renal cancers are associated with mutations of the fumarate hydratase gene located on chromosome 1. Oncocytoma can be seen in mutations of the BHD1 gene located on the short arm of chromosome 17.

99. The epithelial lining of the distal periurethral prostatic ducts is:
A. stratified.
B. pseudostratified.
C. squamous.
D. transitional (urothelial).
E. cuboidal.
Answer= D
The distal prostatic ducts are lined by transitional (urothelial) epithelium as in the prostatic urethra. Primary urothelial carcinoma of the prostate arising from these glands account for 1.5-4% of all male urethral cancers.

100. A 66-year-old man with a history of a CVA five years ago complains of bothersome lower urinary tract symptoms. No improvement was noted after a trial of oxybutynin. A pressure flow urodynamic study reveals no evidence of detrusor overactivity and end fill detrusor pressure of 3 cm H2O at a maximum bladder capacity of 325 ml. He voids with a detrusor pressure of 95 cm after a trial of oxybutynin. A pressure flow urodynamic study reveals no evidence of detrusor overactivity and an end fill detrusor pressure of 3 cm H2O at a peak uroflow of 3 ml/sec and an average of 2 ml/sec. His total volume voided is 200 ml and his PVR is 125 ml. The next step is:
A. mirabegron.
B. tamsulosin.
C. sacral nerve stimulation.
D. posterior tibial nerve stimulation.
E. onabotulinumtoxinA.
Answer= B
If voiding dysfunction persists after stroke, the most common findings include detrusor overactivity, intact sensation, and a synergistic sphincter. However, it is also important to note that nonneurogenic voiding dysfunction may occur as well, especially in this patient population which is often older. The urodynamic findings in this patient are consistent with bladder outlet obstruction sotamsulosin should be started. There is no urodynamic evidence of detrusor overactivity, so therapies directed at that such as mirabegron (beta-3 agonist), SNS, PTNS, and onabotulinumtoxinA would not be the next appropriate step.

101. A 33-year-old man with infertility has azoospermia. He has normal testes bilaterally and a serum FSH of 7 IU/l. Bilateral testis biopsies reveal maturation arrest and bilateral intratubular germ cell neoplasia. The next step is:
A. serial ultrasound and tumor markers.
B. repeat biopsy in six months.
C. bilateral inguinal orchiectomy.
D. XRT to both testes.
E. systemic chemotherapy.
Answer= D
Due to the high association of subsequent development of overt carcinoma, testicular intratubular germ cell neoplasia may be treated by orchiectomy, radiation therapy, or chemotherapy. Radiation therapy is effective and may maintain Leydig cell function. In cases of bilateral disease, bilateral orchiectomy would be a drastic recommendation. Given the potential toxicities of chemotherapy compared to radiation, this approach would be reserved for contralateral CIS in the setting of metastasis from the primary tumor. Prior to treatment, testicular sperm extraction should be considered

as some men with maturation arrest on diagnostic biopsy will have sperm found with a more extensive biopsy.

102. A five-year-old boy has day and night wetting, constipation, and fecal soiling. Physical examination is normal except for a high-arched right foot. Urodynamics show detrusor overactivity and normal sphincter function. The next step is:
A. CIC.
B. timed voiding schedule.
C. spinal MRI scan.
D. antimuscarinics.
E. bowel program.
Answer= C
The patient has the urologic finding of incontinence combined with fecal soiling and a foot abnormality. A tethered cord due to occult spinal dysraphism needs to be ruled-out as the cause of his incontinence. Tethered cord syndrome is a stretch-induced functional disorder of the spinal cord with the most caudal part of the cord anchored by inelastic structures. Specific treatment of his bladder instability (timed voids, medication, catheterization, treatment of constipation) is appropriate after a neurologic cause is excluded.

103. A 45-year-old man has two days of perineal discomfort, dysuria, and urinary frequency. Urinalysis reveals bacteruria and pyuria. Physical examination reveals an enlarged prostate. He has a history of four symptomatic E. coli UTIs over the past year. He finished his last course of antibiotics one week ago. Before antibiotic treatment is restarted, which culture should be obtained:
A. midstream urine.
B. urine by suprapubic aspiration.
C. expressed prostatic fluid.
D. pre- and post-prostatic massage voided urine and prostatic fluid.
E. initial voided urine.
Answer= A
This man likely has chronic bacterial prostatitis, which is usually manifested by recurrent UTIs with the same organism. While lower urinary tract bacterial localization is helpful in identifying the prostate as a nidus of infection, localization is useless in the presence of bacteruria, with all isolation specimens having bacterial growth due to contamination. This man is currently symptomatic with documented bacteruria and should not, therefore, undergo localization testing. In this situation, preferred treatment is to obtain a midstream urine culture and treat preferably with nitrofurantoin. Nitrofurantoin will clear the urine of bacteriuria and have little to no effect on intraprostatic bacteria. Once the urine has been documented to be sterile, usually in three to five days, bacterial localization studies with initial voided, mid-stream, expressed prostatic secretions and post-prostatic massage urinary specimens should be obtained. These tests will allow confirmation of chronic bacterial prostatitis. For chronic prostatitis caused by E. coli, four to six week treatment with the fluoroquinolones is superior to the alternative three month therapy with trimethoprim-sulfamethoxazole. Approximately 20% of the patients will fail the initial therapy and a rescue treatment with a second cycle of therapy with an alternative quinolone has been found to rescue the majority of the relapsing patients.

104. A 36-year-old obese paraplegic man undergoes evaluation for an ileal conduit diversion. The preferred site for urostomy placement is:
A. right upper quadrant lateral to rectus.
B. right upper quadrant through rectus.
C. right lower quadrant through rectus.
D. right lower quadrant lateral to rectus.
E. at umbilicus.
Answer= B
Careful selection of the optimal site for a stoma is a critically important part of the preoperative evaluation of the patient. The stomal site should avoid the umbilicus, bony prominences, scars, and folds. It should be placed in a region where the flat abdominal skin measures 5-7 cm in both directions. The stoma for an ileal conduit is usually located in the right lower quadrant. Paraplegics, often with abdominal prolapse and wheel-chair existence pose a special problem for stomal site selection. A right lower quadrant site often results in a stoma that is difficult for the patient to see, with the stoma and appliance squeezed between the abdomen and thigh. For this reason, in the paraplegic patient, the stoma should always, if possible, be placed in the upper abdomen. In addition, in all patients the stoma should be brought through the rectus muscle to minimize the risk of peristomal herniation. All patients should see an enterostomal therapist prior to stomal placement.

105. The most effective intervention to prevent the formation of bladder calculi in children after augmentation cystoplasty is:
A. oral potassium citrate.
B. prophylactic antibiotics.
C. urinary acidification.
D. oral thiazide.
E. regular bladder irrigation.
Answer= E
Bladder calculi develop in 18-30% of children following augmentation cystoplasty. Various factors may contribute to stone formation, e.g., bacteriuria, urinary stasis, hypocitraturia, mucus, etc. The most effective preventive measure for bladder stone formation is regular irrigation to clear the mucus that may serve as a nidus. No studies have demonstrated efficacy of bladder stone prevention using oral potassium citrate, prophylactic antibiotics, urinary acidification, and thiazide.

106. During robotic cystectomy, the assistant places an extra-long 8 mm metal robotic trocar within a previously placed standard 12 mm plastic trocar to facilitate use of an additional robotic arm for dissection. The use of monopolar scissors within this hybrid trocar creates a higher risk of:
A. trocar dislodgement.
B. trocar site pain.
C. incisional hernia.
D. thermal injury to bowel.
E. vascular injury.
Answer= D
When a metal trocar is placed directly through the skin, the charge surrounding an activated monopolar instrument is conducted back through the metal trocar and dispersed by the abdominal wall. However, placing a metal trocar within a plastic sheath may result in insulation of an electric field from the abdominal wall. The resultant buildup of the electrical field of an activated electrosurgical instrument can then conduct to the exposed metal trocar extending beyond the plastic sheath inside the abdomen resulting in direct conduction to nearby organs such as the bowel. This condition is called capacitance coupling and is one potential cause of electrosurgical injury to the bowel or other internal organs during laparoscopy. As the 8 mm metal trocar is placed within the 12 mm plastic trocar, this would not increase the risk of incisional hernia or trocar site discomfort. As the robotic instrument pivots within a trocar about a fixed remote center point, this avoids any excess inward-outward motion of the trocar thus reducing any risk of trocar dislodgement. Lastly, this unique hybrid trocar arrangement would not itself increase the risk of vascular injury.

107. The most sensitive biochemical test for confirming the diagnosis of pheochromocytoma is:
A. plasma free metanephrines.

B. plasma catecholamines.
C. urinary metanephrines.
D. urinary vanillylmandelic acid.
E. urinary catecholamines.
Answer= A
A number of biochemical tests are available to exclude or confirm the diagnosis of pheochromocytoma. Plasma-free metanephrine testing is the most sensitive test (99%). Because this conversion of catecholamines to metanephrines is an uninterrupted process within pheochromocytomas, the measurement of plasma concentration of metanephrines is a much more sensitive means of tumor detection than the measurement of rises in plasma catecholamines, which may be paroxysmal. Other clinical tests with lower sensitivities include urinary fractionated metanephrines, plasma catecholamines, urinary catecholamines, urinary total metanephrines, and urinary vanillymandelic acid.

108. A 12-year-old girl with myelodysplasia underwent placement of an artificial urinary sphincter and bilateral ureteral reimplantation six months ago. She has new bilateral hydroureteronephrosis and her serum creatinine has increased from 0.8 to 1.4 mg/dl. The likely explanation is:
A. persistent VUR.
B. chronic ureteral atony due to infection.
C. surgical obstruction of the distal ureters.
D. loss of bladder compliance.
E. sphincter malfunction.
Answer= D
New onset hydroureteronephrosis found after sphincter/sling placement in patients with a neurogenic bladder may be caused by bladder decompensation (detrusor noncompliance) that was not identified on pre-operative urodynamic studies. Provocative urodynamic studies (occlusion of the bladder outlet while filling), although once recommended to be performed prior to sphincter or sling placement has not been found to be highly accurate in determining the bladders ability to develop or lose compliance following an increase in outlet resistance, and is therefore of equivocal value. Persistent VUR and ureteral atony would not explain rapid decrease in renal function. Surgical obstruction of the ureters due to the sphincter placement would be seen in an acute setting. Six months following reimplantation, obstruction due to ureteral scarring would be unusual and would not be the most likely reason for the increased dilation seen in the upper tracts. Sphincter malfunction would result in incontinence. The most likely source of new onset hydronephrosis in this setting is either the development of detrusor noncompliance, or patient non-compliance with CIC and timed voiding intervals. Complete urodynamic evaluation and maintenance of a voiding catheterization calendar will help delineate between the two possibilities.

109. Three months after starting abiraterone for metastatic castrate-resistant prostate cancer, a 75- year-old man is responding to the therapy but develops worsening hypertension, hypokalemia, edema, and fatigue. The next step is:
A. discontinue abiraterone.
B. start spironolactone.
C. start fludrocortisone.
D. start prednisone.
E. start docetaxel.
Answer= D
Abiraterone irreversibly inhibits the products of the CYP17 gene including both 17,20-lyase and 17- alpha-hydroylase, resulting in a comprehensive block of androgen synthesis within the tumor, testes, and adrenal glands. As a result of inhibition of 17-alpha-hydroxylase, there is a decrease in cortisol synthesis with compensatory rise in ACTH, resulting in increased adrenal mineralocorticoid production. This can lead to hypertension, hypokalemia, and fluid retention if concomitant glucocorticoids (such as prednisone) are not administered with abiraterone to attenuate these effects. Therefore, glucocorticoid should be given concurrently with abiraterone. Clinical adrenal insufficiency does not generally occur, likely due to mineralocorticoid precursors which have some glucocorticoid activity. Spironolactone may temporarily address the hypokalemia and hypertension respectively, but are not treating the source of the problem. Fludrocortisone is a mineralocorticoid and would not be advisable as the patient is already suffering from mineralocorticoid excess. There is no need to discontinue abiraterone as the patient is responding to the therapy from a cancer perspective. Docetaxel chemotherapy would be reserved for failure of abiraterone therapy, which there are no signs of in this case.

110. A 67-year-old man with a history of six weekly BCG treatments undergoes four cycles of M-VAC for a muscle invasive urothelial cell carcinoma (T3bNXMO) at the bladder neck. Followingchemotherapy, there is no visible tumor although the urine cytology is positive. The next step is:
A. cystoscopy in three months.
B. repeat six weeks of BCG.
C. maintenance BCG.
D. XRT.
E. radical cystoprostatectomy.
Answer= E
Among patients with invasive bladder cancer, M-VAC chemotherapy will result in a complete pathologic response in 20% of patients prior to cystectomy. However, between 20-30% of patients with a clinical response will harbor residual invasive disease at the time of cystectomy. Accordingly, following chemotherapy this patient should undergo a cystoprostatectomy. There is no role for additional intravesical therapy in this patient. In addition, it would be inappropriate to place him on a surveillance protocol.

111. The acidosis of chronic renal failure may be distinguished from acute acidosis by:
A. increased anion gap.
B. decreased plasma HCO3.
C. increased pCO2 and HCO3.
D. decreased pCO2.
E. decreased pH.
Answer= D
The body has three primary mechanisms to handle physiologic and pathophysiologic acid loads including buffers within the blood, CO2 excretion in the lungs, and intracellular pH. Chronic acidosis is characterized by respiratory compensation of the underlying metabolic process. This leads to an increased respiratory clearance of CO2 and a decreased pCO2over time. The pH is not as low as in the acute condition, and plasma bicarbonate is less depressed due to the compensation. Compensation includes HCO3 reabsorption within the proximal convoluted tubule and increased hydrogen ion secretion. The anion gap is often normal in the acidosis of chronic renal failure.

112. A 19-year-old man complains that his partner has noticed significant left lateral deviation of his penis on erection. He denies any penile trauma and has not previously noticed the curvature. The most likely diagnosis is:
A. Peyronie's disease.
B. subacute penile fracture.
C. acquired penile curvature.
D. congenital penile curvature.
E. hypospadias with chordee.
Answer= D
This patient has congenital penile curvature which is often noticed in the postpubescent time period when the man becomes sexually active. Patients with congenital curvature of the penis can have

ventral, lateral (most often to the left), or unusually, dorsal curvature. Photographs of the erect penis demonstrate a smooth curvature of the penile shaft. Patients usually are healthy young men classically presenting between the ages of 18 and 30 years old. Many of these patients have noticed curvature before passing through puberty but have presumed it to be normal. Evaluation is sought by the patient only when the abnormal curvature is brought to their attention from their sexual partner. There is usually no association with penile trauma which may lead to curvature from acute or subacute penile fracture and can cause acquired penile curvature. Peyronie's disease generally occurs in older men and is associated with pain on erection and gradual change in the degree of curvature. Another name for congenital penile curvature is chordee without hypospadias. Surgical repair, when necessary, is usually performed using a plication technique.

113. A repeat prostate biopsy after an initial finding of atypical small acinar proliferation (ASAP), as compared to high-grade prostatic intraepithelial neoplasia (HGPIN), has:

A. a significantly higher risk of prostate cancer.
B. a significantly higher risk of high-grade prostate cancer only.
C. an equivalent risk of prostate cancer.
D. a significantly lower risk of prostate cancer.
E. a significantly lower risk of high-grade prostate cancer only.
Answer= A

With regards to prostatic intraepithelial neoplasia (PIN): 1) Low-grade PIN should not be documented in pathology reports due to poor interobserver reproducibility and a relatively low risk of cancer following re-biopsy, 2) The expected incidence of HGPIN on needle biopsy is between 5-8%, 3) Although the diagnosis of HGPIN is subjective, interobserver reproducibility for its diagnosis is fairly high among urological pathologists, 4) The median risk recorded in the literature for finding of cancer sometime in the patient's life following the diagnosis of HGPIN on needle biopsy is approximately 24%, 5) The majority of publications that compared the risk of cancer following a needle biopsy diagnosis of HGPIN to the risk of cancer following a benign diagnosis on needle biopsy show no differences between the two groups, 6) Clinical and pathological parameters do not help stratify which men with HGPIN are at increased risk for a future diagnosis of prostate cancer, 7) A major factor contributing to the decreased incidence of cancer following a diagnosis of HGPIN on needle biopsy in the contemporary era is related to increased needle biopsy core sampling, which detects many associated cancers on initial biopsy, such that re-biopsy following HGPIN, even with good sampling, does not detect many additional cancers, 8) It is recommended that men do not need routine repeat needle biopsy within the first year following the diagnosis of HGPIN. Furtherstudies are needed to confirm whether routine repeat biopsies should be performed several years following a HGPIN diagnosis. In contrast, atypical small acinar proliferation (ASAP) is a small foci of glands that exhibit some features of adenocarcinoma, it is believed this diagnosis is frequently due to insufficient biopsy material to make the diagnosis of prostate cancer and therefore repeat biopsy is recommended. Regarding ASAP: 1) An average of 5% of needle biopsy pathology reports are diagnosed as having ASAP, 2) Cases diagnosed as ASAP have the highest likelihood of being changed to prostate cancer upon expert review and urologists should consider sending such cases for consultation in an attempt to resolve the diagnosis as definitively benign or malignant before subjecting the patient to repeat biopsy, 3) Ancillary pathologic techniques using basal cell markers and AMACR (alphamethyl- acyl-coenzyme A racemase) can decrease the number of ASAP diagnoses. 4) The average risk of cancer on a subsequent biopsy following a diagnosis of ASAP within a six month time period is approximately 40%, 5) Clinical and pathological parameters do not help predict which men with an atypical diagnosis have cancer on repeat biopsy, 6) Repeat biopsy should include increased sampling of the initial atypical site, and adjacent ipsilateral and contralateral sites with routine sampling of all sextant sites. Therefore, it is critical for urologists to submit needle biopsy specimens in a manner in which the sextant location of each core can be determined, 7) All men with an ASAP diagnosis need re-biopsy within three to six months. It is critical for urologists to distinguish between a diagnosis of HGPIN and that of ASAP on needle biopsy. These two entities indicate different risks of carcinoma on re-biopsy and different recommendations for followup.

114. A 56-year-old man has a prolonged ileus requiring nasogastric suction following radical cystectomy and ileal conduit. On the tenth postoperative day, he has a seizure. The most likely cause of the seizure is decreased serum:

A. calcium.
B. magnesium.
C. potassium.
D. phosphate.
E. sodium.
Answer= B

Magnesium depletion occurs with diuretic use, diabetic ketoacidosis, alcoholism, and prolonged nasogastric suction. The latter is associated with hyperchloremic metabolic acidosis. For reasons that are not clear, this eventually results in hypocalcemia and hypomagnesemia. When hypokalemia is associated with hypomagnesemia, potassium replacement cannot be accomplished until magnesium is replenished. Hypomagnesemia is one of the chief causes of inability to replenish body stores of potassium associated with prolonged nasogastric suction. If not corrected, hypomagnesemia will lead to an alteration in mental status and seizures.

115. A recurrent stone former has low urinary citrate. The patient inquires which soda he can drink. He should be advised to drink:

A. Caffeine Free Diet PepsiTM.
B. Diet Coke with LimeTM.
C. Sprite ZeroTM.
D. Coke ZeroTM.
E. no soda.
Answer= C

Several sodas are acidified by citric acid and contain an amount of citrate equal to or greater than that of lemonade, including Diet Sunkist Orange, Diet 7Up, Sprite Zero, Diet Canada Dry Ginger Ale, Sierra Mist Free, Diet Orange Crush, Fresca, and Diet Mountain Dew. All of the aforementioned sodas have the potential to decrease the risk of kidney stones similar to or greater than lemonade. In contrast, colas, including Caffeine Free Diet Coke, Diet Coke, Diet Coke with Lime, Coke Zero, Caffeine Free Diet Pepsi and Pepsi, are acidified by phosphoric acid, not by citric acid and contain low citrate levels. One randomized study of recurrent stone formers with baseline soda consumption > 160 ml per day, found that over a three-year period those who abstained from any soft drink consumption had a lower risk of symptomatic stone events (34%) compared to those who continued to drink sodas acidified by phosphoric acid (41%; RR, 0.83).

116. An independent factor associated with poor prognosis in patients with local recurrence of RCC following radical nephrectomy is:

A. pulmonary metastasis.
B. age > 65 years.
C. ipsilateral adrenal location.
D. time to local recurrence.
E. size of local recurrence.
Answer= A

Local recurrence after radical nephrectomy is rare with an incidence of 2.9%. In addition, it is associated with a poor prognosis. Patients with local recurrence treated nonsurgically have a low survival rate. In addition, the presence of synchronous metastasis is associated with a significantly lower survival rate. Best outcomes are reported in those patients treated with surgical resection for isolated local recurrence only. Other factors, including time to local recurrence, location in the ipsilateral adrenal or renal fossa, and size of local recurrence are not independently associated with a worse outcome. Overall, five year survival rates for patients with surgically resected isolated local recurrences are approximately 30%.

117. A three-year-old boy lost one-half of his scrotal skin after a dog attack two hours ago. His testicles, penis, and urethra are spared. Best management includes antibiotics, debridement, and:

A. split-thickness skin graft.
B. full-thickness skin graft.
C. placement of testicles in the thigh.
D. scrotal closure with drainage.
E. secondary scrotal closure.
Answer= D

The best choice for management is a tetanus immunization if he is not up to date, antibiotics, debridement, and primary closure with drainage. Skin grafts and placement of the testicles in the thigh are seldom required when half of the scrotal skin remains. Secondary closure for such a recent injury is unnecessary. If grafting is required, a meshed split thickness graft is preferable because the meshing allows exudate to escape and gives improved cosmesis. Thigh pouches are rarely required as wet to dry dressings of the exposed gonads can be effective in critically ill patients until reconstruction is feasible.

118. Patients treated with D-penicillamine should receive supplemental:

A. calcium.
B. magnesium.
C. Vitamin B6.
D. Vitamin B12.
E. iron.
Answer= C

D-penicillamine is used in the management of patients with cystine stones. D-penicillamine is a chelating agent that produces complexes 50 times more soluble than cystine. Side effects include gastrointestinal disturbances, fever and rash, arthralgia, leukopenia, thrombocytopenia, proteinuria with nephrotic syndrome, and polymyositis. It can lead to pyridoxine (Vitamin B6) deficiency and supplementation is recommended with 50 mg/dl.

119. A 49-year-old man had a hand-assisted laparoscopic radical nephrectomy for a 3.8 cm renal mass. Pathologic analysis reveals a grade 3 clear cell RCC confined to the kidney and three regional lymph nodes are negative. The most appropriate follow-up for this patient in addition to routine history and physical exam is:

A. labs and chest x-ray yearly.
B. labs, chest x-ray, and CT scan yearly.
C. labs, chest x-ray, CT scan, and bone scan yearly.
D. labs and chest x-ray every six months for three years, then yearly.
E. labs, chest x-ray, and CT scan every six months for three years, then yearly.
Answer=A

Recent studies on the outcome of radial nephrectomy for localized RCC have demonstrated that the risk of recurrence is stage dependent with the risk approximately 7%, 25%, and 40% for T1, T2, and T3 N0 M0 patients, respectively. The risk of recurrence is also greatest during the first three years. The AUA Guidelines for follow-up of clinically localized renal neoplasms has recently been published. Evidence based recommendations for follow-up should be tailored according to pathologic stage. This patient has stage T1aNo disease. For patients with stage pT1 disease, routine abdominal CT scans are not necessary, however, a yearly chest x-ray for three years is now recommended per AUA Guidelines. For stage pT2 and pT3 patients, it is recommended to obtain chest x-ray and CT scan every six months for three years, then annually to year five.

120. A 14-year-old boy with incontinence had PUV resected as a neonate. The most likely etiology for his incontinence is:

A. occult neurogenic bladder.
B. sphincteric injury.
C. detrusor overactivity.
D. poor bladder compliance.
E. myogenic failure.
Answer= E

Bladder dysfunction in PUV is common. Three distinct forms of bladder dysfunction have been characterized including detrusor overactivity, decreased capacity/compliance, and myogenic failure. In infants, decreased capacity/compliance predominates which then transitions to detrusor overactivity as the child grows older. In adolescents, myogenic failure is the most common pattern seen which results in a large capacity bladder with decreased sensation and a variable degree of bladder wall compliance. Patients may have incontinence from poor emptying and overflow patterns. Management options include timed voiding, double voiding, alpha-blockers, and CIC. While sphincteric injury can occur, it is uncommon, as is the finding of an occult neurogenic bladder in children with PUV.

121. Patients treated with acetohydroxamic acid should be monitored with the following blood test:

A. CBC.
B. LFT.
C. calcium level.
D. magnesium level.
E. ammonia level.
Answer= A

Due to routine bacterial colonization of struvite calculi, any stone fragments left behind following destruction or removal of struvite calculi places the patient at a high risk of both recurrent UTI and stone disease. Significant efforts should be made to render all patients with struvite stones, stonefree. In patients where this is not possible, Acetohydroxamic acid (AHA), a urease inhibitor may be of benefit. AHA has been shown in randomized controlled studies to decrease growth of residual struvite stone fragments, but does not decrease stone recurrence in patients who were made stone free at the time of their surgical procedure. Adverse reactions have occurred in up to 30% of the patients receiving AHA. Most of these reactions are mild in nature and do not require cessation of treatment. Specifically, about 25% of patients will complain of mild headaches and gastrointestinal symptoms within the first 72 hours of starting the treatment. These symptoms are mild, transitory, and should not result in interruption of treatment. It is noteworthy that numerous patients have noted the development of a nonpruritic macular skin rash of the face and upper extremities when concomitantly consuming alcohol. The rash commonly appears 30-45 minutes after ingestion of alcoholic beverages. It characteristically disappears spontaneously in 30-60 minutes. Patients should therefore be counseled to either avoid using alcohol or use smaller quantities of it. Three clinically significant side effects may result in either temporary cessation of treatment or complete withdrawal: 1) Superficial phlebitis involving the lower extremities has been seen in a number of patients on AHA, rarely will these patients advance to deep vein thrombosis. If this side effect should occur, the

medication can be temporarily withdrawn and then restarted almost invariably without ill effects. 2) The most serious side effect of AHA is hemolytic anemia, found in up to 15% of the patients placed on this medication and is more prevalent in patients with renal insufficiency. AHA is a known inhibitor of DNA synthesis and chelates iron. Its bone marrow suppressant effect is probably related to its ability to inhibit DNA synthesis, but anemia could also be related to depletion of iron stores. Subsequently, a decrease in the hemoglobin and hematocrit may arise while on chronic use of this medication. Abnormalities in platelet or WBC have not been noted. Systemic symptoms may be associated with the anemia and are classically described as concurrent malaise, lethargy, and fatigue, and gastrointestinal symptoms (3% of patients with GI symptoms will have concurrent hemolytic anemia). Symptoms and laboratory findings have invariably improved following cessation of treatment. Due to the frequency of this side effect, monitoring patients with quarterly CBC analysis is recommended. 3) Severe depression and or anxiety will arise in 5% of patients. These symptoms are poorly treatable by pharmacologic means and when they develop, interruption or discontinuation of treatment is recommended. AHA is not associated with alterations in liver function, calcium, or magnesium metabolism.

122. Instillation of perioperative intravesical chemotherapy after a complete TURBT for urothelial cell carcinoma of the bladder is effective only if given:

A. immediately following the resection.
B. within six hours of the resection.
C. within 24 hours of the resection.
D. within seven days of the resection.
E. within two weeks of the resection.

Answer= C

The administration of a single perioperative dose of intravesical chemotherapy after complete TURBT for Ta-T1 TCC of the bladder significantly reduces the rate of tumor recurrence. This has also been summarized in a large meta-analysis in which patients receiving perioperative chemotherapy had a recurrence rate of 36.7%, compared to 48.4% with TUR alone. In all studies where benefit was noted, the instillation was given within 24 hours, generally either immediately or within six hours following the TURBT. Several randomized trials have demonstrated significant reductions in recurrence when the intravesical chemotherapy was administered within 24 hours as compared to starting it seven days later. Thus, there is evidence that the instillation should be given on the same day as the TURBT and not later.

123. A three-month-old boy had a lumbar myelomeningocele closed at birth. The finding associated with the potential for detrusor-sphincter dyssynergia is:

A. level of lesion.
B. intact bulbocavernosus reflex.
C. lower extremity movement.
D. spontaneous voiding.
E. decreased anal sphincter tone.

Answer= B

Preservation of the sacral nerve arcs, as indicated by an intact bulbocavernosus reflex, suggests the potential for detrusor-sphincter dyssynergia. While other parameters such as lower extremity movement, spontaneous voiding, and normal anal sphincter tone may also suggest the presence of intact sacral arcs, the bulbocavernosus reflex is the most clinically specific. Unlike spinal cord injury, in lumbosacral spina bifida neural function and urodynamic findings cannot be predicted by the level of the lesion.

124. A 52-year-old man sustains an electrical burn to the penis while repairing a high voltage power line. Four hours after the injury, the penile shaft and glans are erythematous with superficial skin sloughing and blistering. The next step is:

A. observation.
B. retrograde urethrogram.
C. urethral catheter.
D. suprapubic cystostomy.
E. penile debridement.

Answer= D

The patient has suffered a significant burn to the penile shaft. Most genital burns are full thickness with significant tissue sloughing of the penis and urethra in the days following injury. Conservative management, including suprapubic tube placement in the bladder, should be maintained until the full extent of injury is known. Many times, prolonged bladder drainage is required in these patients due to the extent of their injury. Suprapubic cystostomy is preferred over urethral catheterization in order to avoid further urethral damage with catheterization, instrumentation, contrast studies, or endoscopy. Penile debridement is not indicated at this early stage of injury and retrograde urethrogram will not provide useful information four hours after injury.

125. A 61-year-old man has an International Prostate Symptom Score (IPSS) score of 18, a 40 gm benign feeling prostate on DRE, and a PSA of 3.2 ng/ml. He was started on dutasteride and the LUTS improved markedly during the first year of treatment. PSA data on follow-up is: 12 months, 1.2 ng/ml; 18 months, 0.9ng/ml; 24 months, 1.4 ng/ml; and 36 months, 1.9 ng/ml. The next step is:

A. PCA3.
B. free and total PSA in six months.
C. PSA in one year.
D. quinolone antibiotic followed by repeat PSA in six weeks.
E. TRUS and prostate biopsy.

Answer= E

Currently available 5-alpha-reductase inhibitors (finasteride and dutasteride) lower serum PSA in patients with and without prostate cancer. The doubling rule has been used to compensate for PSA reductions in patients on these medications. With growing experience and data from long-term clinical trials using these drugs (e.g. PCPT and PLESS), the effect on PSA and prostate cancer detection has been more clearly defined. Although the doubling rule does accurately reflect the population as a whole, given the wide intra and interindividual variability of serum PSA changes while on these medications, it is relatively inaccurate in the individual patient. While treatment of patients with either finasteride or dutasteride results in a -50% median change in the group as a whole, the 5th to 95th percentile range is -81-20%. Recent analysis of long-term data regarding the change in PSA in men receiving 5-alpha-reductase inhibitors, suggests that in the first year the doubling rule overestimates PSA and can systematically lead to an increased likelihood of prostate biopsy. Beyond 24 months (with further decline in PSA), the doubling rule may underestimate PSA and result in fewer biopsies. As most patients receiving these drugs attain a nadir serum PSA, a sustained increase from nadir can be used to prompt biopsy the same way as it would in untreated patients. Using a 0.3 ng/ml increase from nadir as a trigger for biopsy maintains a sensitivity and specificity similar to an absolute value of 4.0 ng/ml in untreated patients. Free and total PSA ratioshould remain unaffected by 5-alpha-reductase inhibitor use. In the absence of infection, there is no indication for use of antibiotics. PCA3 is only FDA-approved for patients with a prior history of a negative biopsy.

126. A three-year-old girl has an abdominal mass and periorbital ecchymoses. These findings are most suggestive of:

A. tuberous sclerosis.
B. Wilms' tumor.
C. neuroblastoma.

D. Hodgkin's disease.
E. leukemia.
Answer= C
After brain tumors, neuroblastoma is the most common malignant solid tumor of childhood. More than half of these originate in the abdomen and a palpable abdominal mass is the most common finding. Periorbital metastatic disease is common, causing periorbital edema, proptosis, or raccoonlike ecchymoses. Tuberous sclerosis is associated with facial lesions of adenoma sebaceum in 75% of cases. These lesions are firm, discrete, red or brown telangiectatic papules (facial angiofibromata), and are typically located on the nasolabial folds, chin, and cheeks. Renal angiomyolipomas occur in 40-80% of patients with tuberous sclerosis. Wilms' tumor typically presents as an abdominal mass or with gross hematuria. Hodgkin's disease and leukemia often present with fever, night sweats, or fatigue. Neither Wilms' tumor, Hodgkin's disease, nor leukemia are associated with facial or periorbital lesions.

127. A 58-year-old man experiences severe pruritus involving his genitals and buttocks several weeks after returning from a trip to Southeast Asia. Examination reveals small erythematous papules, excoriations, and small raised lines in the skin. The next step is:
A. topical clotrimazole.
B. permethrin.
C. prednisone.
D. serum herpes simplex virus titer.
E. biopsy.
Answer= B
The patient's presentation is characteristic for scabies. Scabies infestation is associated with overcrowding and poor health conditions. Severe pruritis is the hallmark of scabies and involvement of the external genitalia is very common. The characteristic findings on exam are small erythematous papules and thin grey or white burrows. Treatment of choice for scabies is 5% permethrin cream applied to the entire body overnight with a second application one week later. Clotrimazole is useful for treating candida but the examination is not consistent with candidal infection. Herpes simplex virus does not produce pruritis and there is no need for biopsy.

128. A 62-year-old man undergoes TURBT for a solitary low-grade 1 cm papillary Ta bladder tumor. He receives a single perioperative dose of mitomycin C. This therapy will most likely decrease his risk of:
A. postoperative side effects.
B. short term recurrence (< 2 years).
C. long term recurrence (> 2 years).
D. progression.
E. cancer-specific mortality.
Answer= B
Perioperative mitomycin C is effective in decreasing the chance of recurrence in short term (one to two years), however there is no effect on progression or long term recurrence rate, and no significant differences in complications has been reported when compared to other intravesical therapies.

129.In a three-year-old boy, a partial nephrectomy is the most appropriate treatment for:
A. congenital mesoblastic nephroma.
B. stage V Wilms' tumor.
C. stage I rhabdoid tumor.
D. stage III lymphoma.
E. stage III neuroblastoma.
Answer= B
Mesoblastic nephromas are infiltrative tumors not amenable to partial nephrectomy. Rhabdoid tumors are highly malignant and similarly are best treated by radical nephrectomy. Lymphomas are optimally treated with systemic chemotherapy and neuroblastomas rarely involve the kidney. If the neuroblastoma involves the renal hilum, radical nephrectomy is often necessary. In the treatment of Stage V (bilateral) Wilms' tumor, renal preservation is important and hence partial nephrectomy is preferred when appropriate (mass amenable to partial nephrectomy) following chemotherapy.

130. A 56-year-old obese man with a history of depression has a total testosterone of 450 ng/dl. Free testosterone level measured by an analog assay (immunoassay) is low. Physical exam is unremarkable. The next step is:
A. measure estradiol.
B. measure LH and prolactin.
C. measure bioavailable testosterone.
D. testosterone replacement therapy.
E. aromatase inhibitor therapy.
Answer= C
While this patient has depression, this is not specific for testosterone deficiency, and low testosterone should be demonstrated before initiating therapy. The patient has a normal total testosterone but a low free testosterone measured by an analog assay. The gold standard techniques for measurement of free testosterone are ultracentrifugation or equilibrium dialysis. Immunoassays, while convenient and widely available, utilize a testosterone analog and do not give accurate results. Measurement of bioavailable testosterone or free testosterone measured by ultracentrifugation or dialysis should be utilized. Calculated free testosterone which utilizes the total testosterone, sex hormone binding globulin with or without albumin levels, may also be used if the prior tests are not available. Determination of LH and prolactin may be indicated with low total testosterone levels to differentiate between primary and secondary hypogonadism. Since the total testosterone is normal, there is no role for LH or prolactin determination in this patient. While estradiol does increase with obesity, there is no indication for measurement of estradiol in this patient. Aromatase inhibitors are often used off label in patients with elevated estradiol levels and symptomatic gynecomastia. This is second line therapy and should not be initial therapy in most patients since long term safety has not been assessed. Long term use of aromatase inhibitors may result in elevation of liver function tests and affect bone health. Testosterone replacement therapy should not be instituted without demonstrating a low testosterone level.

131. A 62-year-old man takes selenium and Vitamin E. He should be informed that his risk of:
A. high-grade PIN will decrease.
B. prostate cancer will decrease.
C. type 2 diabetes will decrease.
D. prostate cancer is unchanged.
E. non-genitourinary cancers are increased.
Answer= D
A randomized, placebo-controlled trial Selenium and Vitamin E Cancer Prevention Trial [SELECT] of 35,533 men randomly assigned to four groups (selenium, Vitamin E, selenium/Vitamin E, and placebo) was performed in a double-blind fashion. Baseline eligibility included age 50 years or older (African American men) or 55 years or older (all other men), a serum prostate-specific antigen level of 4 ng/ml or less, and a digital rectal examination not suspicious for prostate cancer. Patients received oral selenium (200 ug/d from L-selenomethionine) and matched Vitamin E placebo, Vitamin E (400 IU/d of all race-alpha-tocopheryl acetate) and matched selenium placebo, selenium/Vitamin E, or placebo/placebo for a planned follow-up of minimum of seven years and a maximum of 12 years. There were no differences in prostate cancer risk

between the four groups. However, there were statistically nonsignificant increased risks of prostate cancer in the Vitamin E group (P=.06) and type 2 diabetes mellitus in the selenium group (relative risk, 1.07; 99% CI, 0.94-1.22; P=.16) but notin the selenium/Vitamin E group. The conclusion of the study was that ""selenium or Vitamin E, alone or in combination at the doses and formulations used, did not prevent prostate cancer in this population of relatively healthy men."" Non-genitourinary cancers were unchanged.

132. The site of origin associated with the worst prognosis in pediatric rhabdomyosarcoma is:

A. uterus.
B. prostate.
C. vagina.
D. spermatic cord.
E. bladder.
Answer= B

Combination chemotherapy with or without extirpative surgery has improved the prognosis for patients with rhabdomyosarcoma. The prostate has the worst prognosis as pertains to organ of origin, and radical surgery may be required if there is lack of response to non-operative treatment. The best prognosis in rhabdomyosarcoma has been associated with vaginal origin and embryonal histology.

133. A 23-year-old woman undergoes ureteroscopy with holmium laser lithotripsy for a 5 mm distal radiopaque ureteral calculus. Endoscopically, there was no residual stone. She is now asymptomatic. The next step is:

A. observation.
B. KUB.
C. ultrasonography.
D. KUB and ultrasonography.
E. non-contrast CT scan.
Answer= D:

The need for an imaging study to confirm stone/fragment clearance after ureteroscopy with lithotripsy, although controversial, is widely accepted. These imaging studies are performed to document: 1) clearance of the stone/fragments. 2) resolution of preoperative obstructive hydronephrosis, and/or, 3) rule-out the development of obstruction from a ureteral stricture. The need for these follow-up studies in an asymptomatic patient is, however, subject to debate. At the foundation of this controversy is the low incidence of obstruction following ureteroscopic stone extraction, the ability of the patient's symptoms to predict ureteral obstruction, the unknown time of when a ureteral stricture occurs post-instrumentation, the renal salvage rate following relief of the obstruction, and the cost of a lost kidney versus the need to the need to contain medical costs. Obstruction after ureteroscopic stone extraction has a reported incidence of 1-4%, with the majority of obstructions due to a persistent stone fragment, a ureteral stricture is found to be the cause of the obstruction < 30% of the time. It is noteworthy, that when obstruction is present the vast majority of patients are symptomatic with the incidence of asymptomatic obstruction reported to range from 0.25-2% of patients undergoing ureteroscopic stone extraction. Stated another way, if obstruction develops post-ureteroscopic stone extraction, the majority of patients will be symptomatic. Indeed, a number of investigators have reported on the safety of selective imaging of only symptomatic patients, as opposed to the use of routine imaging after ureteroscopy. These authors center their recommendation for selective renal imaging based on the facts outlined above and believe that routine imaging to detect the rare case of silent obstruction is not cost-effective. The authors of the AUA Guidelines for imaging in patients with ureteral calculus acknowledge this controversy and note that the Level of Evidence for their recommendation for routine post-operative imaging is low (Grade C). In patients with a preoperative radiopaque calculi who have undergone ureteroscopy and lithotripsy, the Guideline Panel believes that the combination of a KUB and sonogram provides the best means to identify the patient who will require either additional imaging or interventional treatment. (Remember, retained stone fragments are the most common etiology overall for obstruction and may be missed by ultrasound alone.) If the patient is asymptomatic and KUB/sonogram show no stones or hydronephrosis, no further imaging is required. If KUB/sonogram demonstrates hydronephrosis and/or residual fragments, further observation with repeat imaging or treatment is indicated. Patients with radiolucent stones or individuals who have undergone ureteroscopy and removal of stone without lithotripsy should undergo a renal ultrasound alone. CT scan is utilized for evaluation if the patient is symptomatic or if hydronephrosis is found on the screening ultrasound. It should be noted that the timing of the follow-up imaging studies is left to the discretion of the treating physician and generally ranges from one to three months postureteroscopy. The lack of a specific recommendation regarding a time interval on when to obtain the post-ureteroscopic image is based on inconsistent and limited data regarding rapidity of ureteral stricture development after ureteroscopic stone extraction. Whether the obstruction is incomplete or complete, the impact of pyelolymphatic and pyelovenous back flow on renal preservation and the unknown length of time obstruction needs to be present to cause irreversible renal loss.

134. During a routine sports physical, a 25-year-old man has a 2 cm, well-circumscribed, solid mass discovered in the lower pole of the left epididymis confirmed by ultrasound. The testis is palpably normal. The next step is:

A. CT scan of the chest, abdomen, and pelvis.
B. transscrotal excision of the mass.
C. inguinal excision of the mass.
D. left epididymectomy.
E. left radical orchiectomy.
Answer= C

This lesion likely represents an adenomatoid tumor, however, one cannot rule-out sarcomas. Adenomatoid tumors are the most common tumor of the paratesticular tissues, accounting for approximately 30% of all paratesticular tumors. There has never been a documented case of metastasis. Most occur in individuals in their twenties or thirties. Tumors present as small, solid, asymptomatic masses generally found on routine examination, ranging from 0.5-4 cm in size. They are typically located in the anatomic distribution of the epididymis, testicular tunicae, and rarely, the spermatic cord. Most tumors will arise in or adjacent to the upper or lower pole of the epididymis, with a slightly higher incidence in the lower pole. The definitive treatment is surgical excision through an inguinal incision. Transscrotal incision is contraindicated because malignancy has not been ruled out. Fertility status, and/or semen analysis, and/or fertility preservation should be discussed with the patient prior to the procedure.

135. A newborn boy with prune belly syndrome has urinary retention and progressive hydroureteronephrosis. The best method to reduce the risk of postoperative bladder wall prolapse after cutaneous vesicostomy is to:

A. perform reduction cystoplasty.
B. create an 8 Fr stoma.
C. place the stoma in the umbilicus.
D. exteriorize the bladder dome.
E. suture bladder muscle to the fascia.
Answer= D

Exteriorization of the dome of the bladder by the Blocksom technique will prevent prolapse of the bladder. Placement of the vesicostomy cephalad to the urachus immobilizes the peritonealized portion of the bladder dome. None of the other techniques have been

shown to adequately immobilize the bladder and prevent the posterior wall of the bladder from extruding through the stoma.

136. A 13-year-old boy with dysuria, left scrotal pain, and swelling has a tender indurated epididymis and normal testes. Urinalysis is normal. An ultrasound shows normal testes with blood flow and an enlarged hypervascular left epididymis. The next step is:
A. NSAIDS.
B. ciprofloxacin.
C. ceftriaxone and doxycycline.
D. uroflow-EMG.
E. VCUG.
Answer= A
The presentation is very strongly consistent with either torsion of an appendix or noninfectious epididymitis. Obtaining a VCUG or uroflow-EMG are unlikely to add any useful information. Neither STD treatment, nor antibiotics should be started without the findings of either a urethral discharge, positive urinalysis, and/or admission of sexual activity. The most appropriate treatment includes NSAIDs as well as rest and scrotal support.

137. A 67-year-old man underwent radical prostatectomy with pelvic lymph node dissection following three months of LH-RH agonist therapy. The pathologist will not be able to accurately describe:
A. tumor volume.
B. tumor stage.
C. nodal status.
D. Gleason score.
E. surgical margins.
Answer= D
Several series have demonstrated that administration of hormonal deprivation therapy prior to radical prostatectomy does not lower the risk of biochemical relapse. Although tumor volume, stage, nodal status, and margin status appear improved in men receiving neoadjuvant hormonal ablation, the risk of biochemical relapse is equivalent to those men who do not receive any neoadjuvant therapy. Gleason scoring can be quite difficult in men who have received hormonal deprivation due to the noted treatment effect in the tissues. Among these men, Gleason score can appear artificially higher and it is recommended that Gleason score not be assigned.

138. The renal cystic condition that arises prior to formation of the nephron is:
A. autosomal recessive polycystic kidney disease.
B. autosomal dominant polycystic kidney disease.
C. medullary sponge kidney.
D. multicystic dysplastic kidney.
E. juvenile nephronophthisis.
Answer= D
Most renal cystic conditions whether congenital, acquired, or sporadic arise from the nephrons and collecting ducts after they have formed. Multicystic dysplastic kidney is an exception in that it arises prior to formation of the nephron. It results from the abnormal differentiation of the metanephric parenchyma during early embryologic development of the kidney. Autosomal recessive polycystic kidney disease occurs during the formation of the nephron and results from mutations in the PKHD1 gene that encodes for a membrane associated receptor like protein known as fibrocystin. Abnormalities in fibrocystin secretion result in dilation of the epithelial line tubules predominantly the renal collecting ducts and the bile ducts. Abnormal fibrocystin secretion, in addition to causing abnormal ductal development, stimulates fibrous connective tissue development resulting in congenital hepatic fibrosis. Autosomal dominant polycystic kidney disease is due to either a defect in the PKD-1 or PKD-2 gene, the former being more common. These genes encode for either polycystin-1 or polycystin-2 respectively. The polycystins function within the calcium channels and disruption of their activity will lead to cyst formation and fibrotic renal stroma and usually begin to become manifest in the second to third decade of life. Medullary sponge kidney is characterized by tubular dilation of the collecting ducts with associated cysts and diverticula. Juvenile nephronophthisis, although rare, is the most common genetic cause of childhood kidney failure and is characterized by fibrosis and cystic dysplasia of renal tubules.

139. A 24-year-old man has a split urinary stream with significant bother. Examination reveals a circumcised penis with a grayish white plaque surrounding a constricted urethral meatus. Retrograde urethrogram reveals a 1.5 cm meatal stricture and the rest of the urethra is unremarkable. Biopsy of the meatus confirms lichen sclerosis. The next step is:
A. meatal dilation.
B. CO2 laser ablation and urethrotomy.
C. meatotomy.
D. distal urethroplasty with buccal mucosa.
E. distal urethroplasty with penile skin flap.
Answer= D
In this patient, the best long-term treatment option is urethroplasty with buccal mucosa. It is felt that the use of extragenital tissue, namely buccal mucosa, reduces the risk of lichen sclerosis (LS) induced stricture recurrence as there is a theoretical field change effect of LS involvement of the entire genital skin. Meatotomy is an option, yet this may create a distal hypospadias appearance for this young man along with potential voiding issues if the meatus is cut too proximal on the glans. Meatal dilation is not effective in this setting and the outcomes of CO2 laser use for LS induced urethral meatal stricture disease is unknown.

140. The most common site of origin of extragonadal germ cell tumors is the:
A. lung.
B. pelvis.
C. mediastinum.
D. pineal gland.
E. retroperitoneum.
Answer= C
In decreasing order of frequency, the most common sites of origin of extragonadal germ cell tumors are the mediastinum, retroperitoneum, sacrococcygeal region, and pineal gland, although manyunusual sites have also been reported.

141. A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal and bladder ultrasound is normal. The next step is:
A. cystoscopy.
B. CT urogram.
C. urinary myoglobin.
D. urinary calcium to creatinine ratio.
E. urinalysis 72 hours later.
Answer= E
Hematuria after prolonged strenuous exercise is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. Hypercalciuria is not related to exercise, and therefore, the urinary calcium to creatinine ratio will be normal. The urinalysis in this benign condition is generally normal 48-72 hours after the exercise. Myoglobinuria is

characteristically brown without RBCs. Cystoscopy and CT urogram will be normal.

142. A 72-year-old woman with pseudomembranous colitis is treated with oral vancomycin. After 48 hours, her diarrhea worsens and she develops fever and leukocytosis. The next step is:

A. oral metronidazole.
B. I.V. vancomycin.
C. I.V. metronidazole.
D. I.V. fluoroquinolone.
E. surgical consultation.
Answer= E

The incidence of Clostridium difficile infection (CDI) is increasing with a preponderance of the NAP1 hypervirulent strain of C. difficile found in recent epidemics. It is believed the NAP1 strain arose due to the widespread use of fluoroquinolone antibiotics. The NAP1 strain is more likely to cause severe and fulminant colitis, characterized by marked leukocytosis, renal failure, hemodynamic instability, and toxic megacolon. While oral vancomycin and oral metronidazole are both considered standard therapies for CDI, recent studies suggest that vancomycin is more effective. Neither I.V. vancomycin nor I.V. metronidazole have been found to be more effective than the oral form of the medications for treatment of CDI. There is no role for fluoroquinolone antibiotics in treatment of CDI. This patient with development of worsening diarrhea, fever, and leukocytosis, demonstrates failure to improve following implementation of standard treatment and is an absolute indication for surgicalconsultation. Subtotal colectomy with end ileostomy is the procedure of choice for fulminant CD colitis nonresponsive to medications and has been documented to result in improved survival.

143. A 65-year-old man has a partial penectomy for a high-grade pT2 lesion. He has no palpable adenopathy in the inguinal region. Metastatic workup is negative. The next step in management is:

A. serial physical examination of the inguinal nodes.
B. serial imaging with CT scan.
C. sentinel inguinal node biopsy.
D. delayed inguinal lymphadenectomy if nodes become palpable.
E. immediate bilateral inguinal lymphadenectomy.
Answer=E

Patients with high-grade T2 cancer are at a significant risk of occult regional disease or of development of this disease. Studies have shown that patients who have an immediate bilateral inguinal lymphadenectomy have an increased survival than if they develop palpable disease during follow-up. Although this patient currently has no evidence of adenopathy, he has a 59% risk of developing involved lymph nodes. Sentinel lymph node biopsy is gaining popularity, but still lacks sufficient sensitivity and specificity.

144. The diagnosis of a renal pseudotumor (column of Bertin, focal cortical hyperplasia) is best established by:

A. MRI scan.
B. MAG-3 scan.
C. DMSA scan.
D. arteriogram.
E. CT scan.
Answer= C

Radionuclide imaging using cortical scanning agents (DMSA, as opposed to MAG-3 which is filtered and excreted) will demonstrate an area of activity when the suspicious lesion is cortical hyperplasia (column of Bertin). MRI scanning will not differentiate this from other solid lesions. Although arteriography and CT scanning will both help in differentiating malignancy from pseudotumor, they are more invasive and expensive than renal scan and also have higher radiation exposure. They should be utilized only if the radionuclide study does not provide a definitive diagnosis.

145. A 55-year-old diabetic woman stented three months earlier for an obstructing ureteral calculus is scheduled for ureteroscopy and laser lithotripsy. A preoperative urinalysis reveals yeast that is confirmed with a catheterized specimen. The next step is:

A. administer preoperative amphotericin I.V. and proceed with planned surgery.
B. administer preoperative fluconazole I.V. and proceed with planned surgery.
C. administer preoperative caspofungin I.V. and proceed with planned surgery.
D. instill amphotericin solution into the bladder 30 minutes preoperatively and proceed with planned surgery.
E. reschedule surgery, proceed with surgery only after culture-documented clearance of funguria.
Answer= E

Candida species are capable of causing severe infection and should be treated as a uropathogen. Suspected UTI should be treated prior to ureteroscopic stone treatment with surgery performed only after culture documented clearance of funguria. Neither irrigation nor intravenous administration of anti-fungals just prior to surgery is sufficient to reduce the risk of postoperative candidemia.

146. A 44-year-old woman undergoes a left radical nephrectomy for a 6 cm RCC with renal vein involvement. The posterior surgical margin is positive. Pathologic tumor stage is:

A. T1b.
B. T2b.
C. T3a.
D. T3b.
E. T4.
Answer= C:

If this 6 cm tumor were contained within Gerota's fascia, the pathologic (p)T stage would be pT1b. However, there is renal vein involvement that is now classified as pT3a (previously pT3b). Tumors with isolated renal vein thrombus are known to have a relatively favorable prognosis, and as a result are now staged as T3a rather than T3b. The margin status is designated as R1, but does not affect primary pathologic tumor stage.

147. A phenotypically normal three-year-old girl has testicles found in the hernia sacs at herniorrhaphy. She will also have:

A. elevated 17-hydroxyprogesterone.
B. absent 5-alpha-reductase.
C. abnormal androgen receptor activity.
D. low testosterone, and elevated LH and FSH.
E. 45 X0/46 XY karyotype.
Answer= C

Three percent of girls with inguinal hernias have complete androgen insensitivity syndrome. A testicle is found in the hernia sac and a chromosome analysis will reveal a 46 XY karyotype. They should be raised as females. 45 X0/46 XY chromosomal patterns are accompanied by a streak gonad most commonly. Elevated 17-hydroxyprogesterone is seen with CAH, but in this case thegonads would be ovaries. Patients with 5-alpha-reductase deficiency present with either proximal hypospadias or more ambiguous genitalia. Low testosterone with elevated LH and FSH occurs with abnormal testosterone production.

148. A 65-year-old man has symptoms of cystitis, left flank pain, and a fever to 39° C. Urinalysis reveals pyuria and culture shows a pan-sensitive E. coli. One month after appropriate antibiotic therapy, he is asymptomatic and repeat urinalysis and midstream culture are negative. PVR is 45 ml. The next step is:

A. observation.
B. complete urodynamic studies.

C. prostatic localization cultures.
D. trimethoprim sulfamethoxazole prophylaxis.
E. CT urogram and cystoscopy.
Answer= E
This man presents with symptoms of pyelonephritis. While uncomplicated cystitis in a young sexually active male may not require investigation beyond a follow-up urine culture, a complicated UTI in an older male warrants urologic evaluation such as CT urogram and cystoscopy due to the high incidence of associated urologic abnormalities such as obstruction from either urethral or ureteral strictures, tumor, or stones. Observation is incorrect. Localization cultures might be considered as part of a urologic evaluation but are not sufficient as isolated tests in the presence of a complicated febrile UTI. There is no justification for prophylaxis or complete urodynamic studies.

149. A 68-year-old active man with metastatic castration-resistant prostate cancer receives six cycles of docetaxel plus prednisone. Bone scan reveals several new rib lesions. To improve the likelihood of overall survival, the next treatment step is prednisone and:
A. continued docetaxel.
B. zoledronic acid.
C. ketoconazole.
D. mitoxantrone.
E. cabazitaxel.
Answer= E
Progression while on docetaxel-chemotherapy defines failure of the docetaxel. Cabazitaxel is a novel tubulin-binding taxane drug with anti-tumor activity in docetaxel-resistant cancers. In a large Phase 3 trial, the efficacy and safety of cabazitaxel plus prednisone was compared to that of mitoxantrone plus prednisone. There was a 30% reduction in the risk of death with the cabazitaxel (15.1 months versus 12.7 months). None of the other agents listed have been shown to improve survival in men with castration-resistant prostate cancer. Two additional agents recently approved bythe FDA which are abiraterone and enzalutamide, have been shown to also improve survival in this patient population. None of the other regimens have demonstrated a survival difference in this population of patients.

150. A 17-year-old girl with spina bifida undergoes a two-day bowel preparation followed by bladder neck reconstruction and ileocystoplasty. Intraoperatively, she receives five liters of D5 NS with two units of packed RBCs. Two hours postoperatively, she has decreased respiratory effort and generalized muscle weakness. Arterial blood gas shows a respiratory acidosis. Her chest x-ray is normal. Her symptoms are most likely due to:
A. latex allergy.
B. hypercalcemia.
C. hypomagnesemia.
D. pulmonary embolus.
E. hypokalemia.
Answer= E
This patient is likely suffering from hypokalemia. Patients following vigorous bowel cleansing, even with Go-Lytely or other electrolyte solutions, will often have low potassium. The characteristic signs include muscular weakness with poor respiratory effort causing decreased ventilation in the presence of a normal chest x-ray. Latex allergy may present with itching, erythema, wheezing and coughing, or with anaphylactic shock and hypotension, and severe respiratory distress with or without loss of consciousness. Hypercalcemia may present with excessive thirst, nausea and vomiting, abdominal and joint pain, and lethargy. Muscle cramps, weakness and tremors, and cardiac arrhythmia, may develop in the patient with hypomagnesemia. Common signs and symptoms of pulmonary embolism include shortness of breath, chest pain similar to that experienced with a myocardial infarction, excessive sweating, rapid or irregular heart rate, and in some cases, loss of consciousness..

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1. Seminal emission depends on an intact:
A. parasympathetic and somatic nervous system,
B. sympathetic nervous system,
C. parasympathetic nervous system,
D. sympathetic and parasympathetic nervous system,
E. sympathetic and somatic nervous systems.
ANSWER=B
Emission is defined as the deposition of seminal fluid into the posterior urethra by the vasa deferentia and the seminal vesicles. Ejaculation is the forceful expulsion of seminal fluid out the urethral meatus by contraction of the bulbospongiosus and ischiocavernosus muscles. Since the vasa and the seminal vesicles are innervated primarily by the sympathetic nervous system, emission is under control of the sympathetic nervous system. Alpha-adrenergic nerve stimulation causes not only contraction of the seminal vesicles and vasa deferentia but also closure of the bladder neck. Ejaculation is the result of somatic nerve stimulation of the periurethral striated musculature. The parasympathetic nervous system is not directly involved with either emission or ejaculation.

2. After starting antimicrobials in healthy individuals with uncomplicated acute pyelonephritis, the urine is typically sterile within:
A. a few hours,
B. twenty-four hours,
C. forty-eight hours,
D. three days,
E. seven days.
ANSWER=A
The urine usually becomes sterile within a few hours of starting antibiotics even though fever, chills, and flank pain may continue for several days. A delay in clearance of bacteria may occur with obstruction, stone disease, anatomic abnormalities, or impaired renal function. Symptoms of pyelonephritis continuing for 72 hours after initiation of culture appropriate antibiotics should result in the physician considering the need for imaging studies and repeat cultures to rule-out anatomic abnormalities or the emergence of antibiotic resistant bacteria.

3 A 55-year-old woman with breast cancer has a 3.5 cm right adrenal nodule. The nodule has an attenuation of 25 Hounsfield units on non-contrast CT scan, 80% washout on contrast enhanced CT scan, and signal loss of 40% on chemical shift MRI scan. The lesion is a:
A. lipid rich adenoma.
B. lipid poor adenoma.
C. myelolipoma.
D. breast cancer metastasis.
E. primary adrenal cancer.
ANSWER=B
In patients with a history of cancer found to have a > 2 cm adrenal mass on a CT scan, approximately 50% of the lesions will be due to a metastasis from the primary tumor. Through the use of CT and MRI manipulations, the indeterminate adrenal mass (classified as a mass 2-5 cm in size) can usually be accurately characterized without biopsy. Benign adrenal tumors, such as a myelolipoma or lipid rich adenoma will usually have non-contrast CT Hounsfield units of < 10. In an adrenal lesion with a CT Hounsfield value of > 10, differentiation of lipid poor adenomas from malignant lesions will require a CT study with contrast and washout, as well as chemical shift MRI scans for differentiation of a benign from a malignant mass. The common features of lipid poor benign adenoma are > 60% washout on CT scan with I.V. contrast while a malignant lesion will usually have a < 60% washout on CT scan. MRI findings consistent with a lipid poor benign adenoma is an adrenal to spleen ratio (ASR) of < 70% and signal loss of > 20% on out of phase imaging. Malignant lesions will display an ASR of > 70% and signal loss of < 20% on out of phase imaging.

4 A 54-year-old man with hypertension and a creatinine of 1.7 mg/dl is started on an ACE inhibitor. After two weeks, the creatinine is unchanged, but hypertension persists and a diuretic is added. One week later, the creatinine is 2.5 mg/dl (eGFR of 27 ml/min/1.73 m^2). The next test is:
A. split renal vein renin measurements.
B. contrast-enhanced MR angiography.
C. nonenhanced MR angiography.
D. contrast-enhanced CT angiography.
E. captopril renography.
ANSWER=C
Up to 10% of patients with hypertension may have an element of renal vascular disease as the etiology of their rise in blood pressure. In patients with bilateral renal artery disease, hypertension is largely a volume-dependent phenomenon with excess fluid volume protecting renal function. When diuretics are given to these patients, volume depletion occurs, with renal perfusion subsequently becoming angiotensin-dependent. The combination of diuretics and ACE inhibitors in a patient with bilateral renal artery stenosis will therefore result in the onset of renal insufficiency. Based on this knowledge, the use of the combination of ACE inhibitors with diuretics may be used as a provocative test to identify patients with bilateral ischemic (renal vascular) nephropathy. In essence, a finding of an elevation in serum creatinine within two to four weeks of starting the combination of a diuretic and an ACE inhibitor is highly suggestive of the presence of bilateral renal artery stenosis. Screening for renal artery stenosis in this clinical scenario is mandatory. Captopril enhanced testing is less accurate in the setting of renal insufficiency and is not the test of choice in patients associated with an elevation in serum creatinine. Renin-based testing is mainly utilized to determine the possible presence of renovascular-induced hypertension, and is not indicated once bilateral ischemic nephropathy has been suspected to be present by a provocative test using a diuretic and an ACE inhibitor. The key evaluation in this patient is the anatomical assessment of the renal arteries to determine the possibility for vascular intervention. Imaging studies used to diagnose renal artery stenosis include ultrasound, contrast- enhanced CT angiography, and contrast-enhanced or nonenhanced magnetic resonance (MR) angiography. Although ultrasound is an effective screening tool, visualization of the entire renal artery to assess for interventional repair can be problematic. Contrast- enhanced CT and MR angiography can provide exquisite details of the renal arterial anatomy, and are highly accurate for determining both the diagnosis and extent of renal artery stenosis. However, the use of iodinated contrast for CT or the gadolinium-based contrast for MR angiography may be problematic for patients with renal dysfunction, eGFR < 30 ml/min/BSA. In these patients, the iodinated CT contrast may potentially cause further kidney injury, and the use of gadolinium-based contrast can lead to a condition called nephrogenic systemic fibrosis (fibrosis of the skin, joints, and internal organs) that will lead to significant morbidity or death. The preferred test of choice in a patient with an eGFR of < 30 ml/min/BSA under consideration for surgical intervention is the use of nonenhanced MR angiography.

5 A 25-year-old man has left scrotal pain after sustaining an injury playing soccer. The left testis is tender and enlarged on exam. Scrotal ultrasound reveals a 5cm hematocele, normal intraparenchymal blood flow, and a focal area of increased left testis echogenicity. The tunica albuginea cannot be fully visualized. The next step is:
A. observation.
B. MRI scan of the scrotum.
C. repeat scrotal ultrasound in 48 hours.
D. obtain tumor markers.
E. scrotal exploration.
ANSWER=E
The patient has a 5 cm hematocele following blunt scrotal trauma with an indeterminate ultrasound examination. Significant hematoceles (5 cm or greater) should be explored, regardless of imaging studies, as up to 80% will be associated with a testicular rupture. The increased area of echogenicity does not infer tumor, and thus, tumor markers are not indicated. MRI will not add useful information.

6 A 55-year-old active woman desires surgical repair of a vaginal bulge. She has urinary frequency but no urinary or fecal incontinence. The physical examination with a cystoscope in the urethra is shown followed by a cystogram at maximal Valsalva taken during a videourodynamic study. The next step is:
A. anterior (cystocele) repair with sling.
B. transvaginal vault suspension and anterior (cystocele) repair.
C. uterosacral vault suspension and rectocele repair.
D. robotic sacrocolpopexy.

E. robotic sacrocolpopexy and midurethral sling.

ANSWER=E
This patient has vaginal vault prolapse. The image from the videourodynamics study does not demonstrate a cystocele. The majority of physicians would recommend that this patient should undergo repair of the vault prolapse with a concurrent anti-incontinence procedure. The concurrent anti-incontinence procedure is performed due to the increased risk of de novo stress incontinence following vault suspension. In the context of a robotic sacrocolpopexy, a midurethral sling would be the most appropriate approach. Urodynamics, with or without prolapse reduction, are not predictive of which patients will develop de novo SUI following vault suspension. While acceptable to proceed with robotic sacrocolpopexy and no sling, the patient should be informed of the risk of postoperative stress incontinence. Some patients may prefer this approach due to the inherent risks of sling procedure, however rare they may be.

7 During the third trimester of pregnancy, the most common changes in renal function tests are:
A. elevated BUN; decreased creatinine.
B. elevated BUN; elevated creatinine.
C. decreased BUN; decreased creatinine.
D. decreased BUN; elevated creatinine.
E. unchanged BUN and creatinine.
ANSWER=C
In pregnancy, it has been proposed that the increase in cardiac output leads to increase in glomerular filtration rate (GFR) and renal plasma flow. GFR increases between 30- 50% as full-term approaches. This increase in GFR leads to a decrease in the serum BUN and creatinine. Therefore, the normal values for BUN and creatinine are lower in pregnant women than they are in non-pregnant women..

8 A 28-year-old man has 1+ proteinuria and moderate blood on two dipstick analyses. Two microscopic urinalyses each reveals 0-2 RBC/hpf. According to the AUA Guidelines, the next step is:
A. reassurance and no further evaluation.
B. serum albumin level.
C. urine cytology.
D. 24-hour urine collection for protein.
E. cystoscopy and upper tract imaging.
ANSWER=D
Proteinuria of 1+ or greater on repetitive dipstick urinalyses should prompt a 24-hour collection to quantitate the degree of proteinuria. In the absence of significant bleeding, > 1 g/24 hour should then prompt a more extensive evaluation for renal parenchymal disease and possible nephrology referral. This patient in fact does not meet criteria of microhematuria because the number of RBCs/hpf is < 3 thus further hematuria evaluation is not warranted. Mild proteinuria would be unlikely to affect serum albumin levels.

9 A 68-year-old man with ESRD has been on peritoneal dialysis for four years. He is anuric and asymptomatic. Ultrasound reveals several non-echogenic cysts involving the left kidney. The next step is:
A. left nephrectomy.
B. CT scan.
C. renal arteriography.
D. repeat ultrasound in six months.
E. conversion to hemodialysis.
ANSWER=D
The overall prevalence of RCC in patients with ESRD is 1%. This risk is increased three-four-fold in individuals with acquired renal cystic disease of dialysis (ARCD). The onset of ARCD is directly related to the severity of azotemia and the length of time the individual has been on dialysis. RCC in patients with ESRD generally occurs within ten years of the initiation of dialysis. They are multicentric, bilateral, less aggressive than sporadic RCC, and have a male predominance. Both hemodialysis and peritoneal dialysis have been associated with an equivalent incidence of ARCD, and there is no evidence that conversion from one form of dialysis to another influences this disease. For this reason, periodic ultrasound is recommended every six months for patients on chronic dialysis for > 3 years. In this patient population it is appropriate to consider CT, MRI scan, or proceed directly to surgical intervention when the ultrasound suggests a complex cyst or a solid mass > 3 cm.

10 A 55-year-old man is scheduled to undergo TRUS-guided prostate biopsies. He has a severe allergy to ciprofloxacin. The best antibiotic regimen is:
A. trimethoprim and sulfamethoxazole orally twice daily for three days.
B. cefuroxime 500 mg orally twice daily for three days.
C. levofloxacin 500 mg orally once daily for three days.
D. gentamicin 5 mg/kg I.V. 30 minutes prior to the biopsy.
E. ceftriaxone 1 gm I.V. 30 minutes prior to the biopsy.
ANSWER=E
TRUS and biopsy is one of the most common urologic procedures. Antibiotic prophylaxis is well-established as reducing infection after the procedure. The AUA Best Practice Statement on Antimicrobial Prophylaxis states that the only oral agent approved for TRUS and biopsy prophylaxis is an oral fluoroquinolone. Alternatives are an I.V. 1st, 2nd or 3d generation cephalosporin or aminoglycoside plus metronidazole or clindamycin. Septra and oral cefuroxime are incorrect because of the oral route of administration. Levofloxacin is incorrect since the patient had a severe ciprofloxacin allergy, so other fluoroquinolones should be avoided unless tolerance testing is performed. Gentamicin without metronidazole or clindamycin is also incorrect.

11 A 78-year-old woman with history of anaphylactic reaction to penicillin, renal insufficiency (Cr 2.3) has right-sided flank pain and high fever. Recent culture revealed E. coli with sensitivity to nitrofurantoin, gentamicin, ceftriaxone, and intermediate sensitivity to ciprofloxacin. The next step is to admit her to the hospital and start:
A. ciprofloxacin.
B. gentamicin.
C. imipenem.
D. ceftriaxone with diphenhydramine and hydrocortisone.
E. ciprofloxacin and nitrofurantoin.
B Aminoglycosides remain a mainstay of treatment for life-threatening gram-negative infections. The risk of nephrotoxicity is increased in the elderly, diabetics, and in patients with pre-existing renal insufficiency. However, the acuity of this patient's pyelonephritis makes those considerations secondary. Cephalosporins and beta-lactam antibiotics (imipenem) are generally contraindicated with a history of anaphylactic reaction to penicillin, even though the absolute risk of severe reaction appears to be quite low. There is no evidence that pre-treatment with diphenhydramine and hydrocortisone would further reduce this risk. Ciprofloxacin is not an ideal choice because the organism exhibits only intermediate sensitivity and antibiotic concentrations in the urine are lower in a kidney with markedly diminished function. Nitrofurantoin is only active in the urine and is not appropriate for the treatment of tissue infections.

12 A 17-year-old boy has a left radical orchiectomy for a pathologic T2 5 cm tumor, which is 70% embryonal cancer and 30% teratoma. He has a 2 cm para-aortic adenopathy and no other visible metastases. His initial markers show an AFP of 7,000 IU/ml and a normal beta-hCG. Two weeks later, his beta-hCG is normal and his AFP is 5,000 IU/ml. The next step is:
A. repeat tumor markers in two weeks.
B. three cycles BEP.
C. four cycles etoposide and cisplatin.
D. four cycles of BEP.
E. RPLND.

ANSWER=D
This patient has T2N2M0S2 NSGCT, also categorized as clinical stage 2B. The standard treatment should be primary chemotherapy. The selection of chemotherapy regimen depends on the International Germ Cell Cancer Collaborative Group Risk Classification for Advanced Germ Cell Tumor (IGCCG) that includes location of primary tumor, metastases and tumor marker levels. This patient is considered intermediate risk based on the post orchiectomy AFP over 1,000 IU/ml, and all intermediate and high risk patients should receive four cycles of BEP.

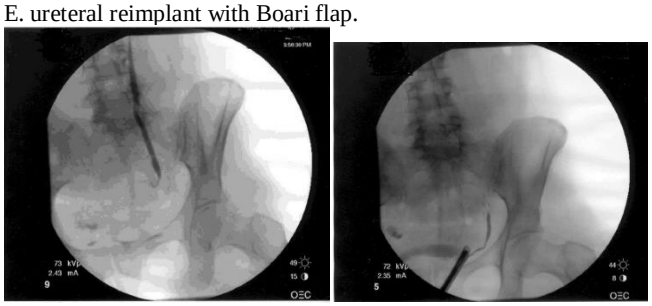
13 A 58-year-old man develops abdominal pain and fever to 101F three days after left radical nephrectomy. He is treated with I.V. antibiotics. The next day, the previously dry incision leaks 100 ml of cloudy fluid (pH 9.5, amylase 8,000 U/l). CT scan shows a 5 cm fluid collection in the left renal fossa. The next step is a naso-gastric tube and:
A. low triglyceride diet.
B. percutaneous drainage and TPN.
C. open surgical drainage.
D. open ligation of fistula site and drainage.
E. distal pancreatectomy and drainage.
ANSWER=B
A particularly distressing postoperative complication following radical nephrectomy is the development of a pancreatic fistula because of an unrecognized intraoperative injury to the pancreas. This is usually manifested in the immediate postoperative period with signs and symptoms of acute pancreatitis and drainage of alkaline fluid from the incision. A CT scan of the abdomen demonstrates a fluid collection in the retroperitoneum. Fluid draining from the incision should be analyzed for pH and the presence of amylase. Treatment involves percutaneous drainage of the pseudocyst or abscess. The majority of fistulae close spontaneously with the establishment of adequate drainage. Because the healing of a pancreatic fistula is usually a slow process associated with significant nutritional loss, the patient is also supported with hyperalimentation. Surgical treatment with resection of the distal pancreas is necessary if nonoperative management fails. Open surgical drainage or ligation of the fistula would not be indicated and/or considered the treatment of choice. A low triglyceride diet would be indicated for a lymphatic leak.

14 Cystine calculi can be diagnosed with the following test:
A. sodium nitroprusside.
B. phenolphthalein.
C. thiazide challenge.
D. serum pH.
E. serum chloride.
ANSWER=A
The sodium nitroprusside spot test will turn urine purple in the presence of cystine. This test is used for screening purposes to identify patients with cystine stone disease who are undergoing a 24-hour urine collection for evaluation. Phenolphthalein is a urinary marker for laxative abuse and may be helpful in the diagnosis of ammonium acid urate stones. A thiazide challenge may be helpful in the diagnosis of hyperparathyroidism. Serum pH and serum chloride may be helpful in the diagnosis of RTA type I. Ferrandino MN, Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis,

15 A 54-year-old man has a muscle invasive urothelial carcinoma on TURBT. The preoperative CT scan shows loss of the fat plane on the right side of the bladder. The next step is:
A. PET scan.
B. MRI scan.
C. neoadjuvant chemotherapy.
D. XRT.
E. cystectomy.
ANSWER=C
This patient most likely has T3 or T4 disease based on this CT scan. For T2 to T4 disease, large prospective randomized trials and meta-analyses have demonstrated that outcomes are better in patients who receive neoadjuvant chemotherapy prior to surgery rather than surgery alone. There is no evidence that MRI is significantly better at determining whether there is organ confined disease than a CT scan. In addition, with a CT scan that is fairly unequivocal there is no benefit from additional local imaging. Grossman HB, Natale RB, Tangen CM, et al: Neoadjuvant chemotherapy plus cystectomy compared with cystectomy alone for locally advanced bladder cancer.

16 The renal toxicity of intravenous contrast material is due to:
A. glomerular injury.
B. afferent arteriolar constriction.
C. efferent arteriolar constriction.
D. intrarenal vasoconstriction and tubular necrosis.
E. efferent arteriolar dilation and tubular necrosis.
ANSWER=D
Contrast media accounts for 10% of all causes of hospital-acquired acute renal injury. Three key risk factors that may provoke this injury are: pre-existing renal dysfunction (serum creatinine > 1.6 mg/dl or eGFR < 60 ml/min/BSA), pre-existing diabetes, and reduced intravascular blood volume. Contrast agents evoke renal injury by two mechanisms: first, by acting as an intrarenal vasoconstricting agent resulting in decreased intrarenal blood flow and hypoxemia; second, by a direct toxic effect of the contrast agent on tubular epithelial cells. The combination of renal medullary ischemia and direct cellular toxicity leads to increased renal epithelial cell apoptosis and acute tubular necrosis. The osmolality of the contrast agent once believed to be of paramount importance in the induction of contrast-induced nephropathy has been shown to play a minimal role in contrast-induced nephropathy. Indeed, recent studies have found that viscosity of the contrast agent is more important than osmolality. These findings resulted in the recommendation that periprocedural hydration along with limiting the amount of contrast agent are the key to prevent contrast-induced renal failure. A recent meta- analysis to evaluate the various interventions employed for prevention of this complication, assessing sodium bicarbonate solutions, adenosine antagonists (theophylline), N-acetylcysteine and ascorbic acid noted mixed results with no definitive proof that these agents could prevent the complication. Randomized control studies have, however, shown that in patients with a creatinine of > 3.5 mg/dl prophylactic hemodialysis prior to and following the study can reduce the risk of this complication.

17 A 46-year-old woman sustained a ureteral injury during an abdominal hysterectomy for fibroids six weeks ago. A left percutaneous nephrostomy tube was placed. A retrograde ureterogram and an antegrade pyeloureterogram are shown. The next step is:
A. balloon dilation.
B. endoureterotomy.
C. ureteroureterostomy.
D. ureteral reimplant with psoas hitch.
E. ureteral reimplant with Boari flap.



ANSWER=D
The retrograde and antegrade studies show a complete obstruction of the left distal ureter at the level of the uterine vessels. Most likely, the ureter was divided during clamping of the left uterine vascular pedicle or a thermal injury was sustained. The high-grade obstruction (no contrast goes through the obstruction with both retro and antegrade injections) demonstrated makes the success of an endoscopic approach unlikely. Ureteroureterostomy is not a good option in the distal ureter, and should be reserved for short mid- to upper ureteral defects. The best repair for this patient is a ureteral reimplant with a psoas hitch. A Boari flap is not necessary in this patient and is reserved for lengthy distal ureteral defects up to 15 cm long.

18 A 38-year old man is referred for prostate cancer screening. According to the AUA Guidelines, the next step is:
A. advise against screening.
B. initiate yearly screening.

C. initiate yearly screening if positive family history or African American.
D. initiate biennial screening.
E. screen now and repeat in five years.
ANSWER=A
According to the EARLY DETECTION OF PROSTATE CANCER: AUA GUIDELINES, guideline statement number 1 states that the panel recommends against screening in all men under age 40. In this age group, there is a low prevalence of clinically detectable prostate cancer. There is no evidence to demonstrate a benefit of screening, and there are likely the same harms of screening as in other age groups. This recommendation holds even for African-Americans or those with a family history of prostate cancer. The panel does state that to reduce the harms of screening, a routine screening interval of two years (biennial screening) or more may be preferred over annual screening in those men who have participated in shared decision-making and decided on screening (Guideline statement 4). As compared to annual screening, it is expected that screening intervals of two years preserve the majority of the benefits and reduce over-diagnosis and false positives. However, in this patient population, no screening is recommended. Some authors have put forth the strategy of initial screening and then follow-up in five years. Although such strategies may help reduce over- diagnoses and better select men who are likely to be true positives, this approach has not been well-validated and accepted by the AUA Guidelines.

19 A 67-year-old man has a rectourethral fistula one year after cryotherapy for localized prostate cancer. An initial fulguration failed and six months ago, he underwent proximal colostomy and suprapubic tube placement. He continues to have urine leakage per rectum and recurrent UTIs. Biopsy of the prostate shows no cancer and serum PSA is 0.3 ng/ml. The best therapy is:
A. pelvic exoneration.
B. transabdominal repair.
C. urinary diversion.
D. salvage prostatectomy.
E. York Mason transrectal, transsphincteric repair.
ANSWER=E
A rectourethral fistula is relatively low in the pelvis and is best managed by the posterior-transanal repair (York-Mason) approach, in which the posterior anal sphincter is split to provide good exposure of the anterior rectal wall. The fistula site can then be excised with a multilayer closure. A transabdominal repair is difficult in this setting due the location deep within the pelvis, and this type of fistula is better repaired through the posterior-transanal approach. A urinary diversion may need to be considered, but only if attempts for primary repair have failed. This patient's PSA is <0.5 and he is likely to stay cancer free, so salvage prostatectomy or pelvic exoneration should not be considered.

20 A 76-year-old man with insulin dependent diabetes returns six years after artificial urinary sphincter (AUS) placement with difficulty emptying his bladder despite appropriate action of his control pump. Examination reveals perineal induration without fluctuance or tenderness. Urinalysis is normal and PVR is 250 cc. Urodynamics reveals low pressure voiding with incomplete emptying. Urethroscopy shows no evidence of erosion. The next step is:
A. ciprofloxacin.
B. deactivate cuff.
C. initiate CIC.
D. pelvic CT scan.
E. remove AUS.
ANSWER=E
For late-onset urinary retention found in patients with an AUS in situ, endoscopic and urodynamic evaluation is required to identify urethral erosion, proximal obstruction, or the development of detrusor failure. In this case, obstructive voiding symptoms, an abnormal physical examination with a normal endoscopic and complete urodynamic evaluation are highly consistent with periprosthetic infection without urethral erosion, secondary pericuff edema resulting in the obstructive symptoms. Late infections of AUS are usually due to gram positive cocci (S. aureus or S. epidermidis). Treatment with ciprofloxacin will not clear the infection due to bacterial adherence to the biofilm of the AUS. In addition, in this patient with diabetes, the local infection could quickly escalate resulting in widespread cellulitis and Fournier's gangrene. Removal of the AUS with appropriate cultures and, if indicated, salvage AUS replacement should be considered. Cuff deactivation will not prevent retention unless the patient is incapable of using the device. CIC will not treat the underlying problem, which remains undiagnosed. A pelvic CT scan may define inflammation around the device; however, a negative CT scan does not indicate absence of infection and, therefore, cannot be relied upon. Cuff size is not likely to influence voiding status except in the immediate postoperative period when, if retention occurs, cuff upsizing may be necessary. In this patient with a long history of an AUS, sub cuff atrophy is more likely.

21 In a testicular cancer patient, positron emission tomography (PET):
A. has decreased sensitivity due to high cell turnover of germ cell tumors.
B. is most useful at the time of initial diagnosis.
C. is most useful in patients with lung nodules.
D. has good sensitivity for post-chemotherapy seminomas.
E. can distinguish teratoma versus fibrosis.
ANSWER=D
Malignant GCT accumulates fluorodeoxyglucose (FDG), and several studies have investigated FDG-labeled positron emission tomography (FDG-PET) in the staging of GCT at diagnosis and assessing response after chemotherapy. The high sensitivity is likely due to the high turnover and increased metabolic rate of GCTs. Due to limited sensitivity at the time of initial diagnosis, there is currently no role for FDG-PET in the routine evaluation of NSGCT and seminoma at the time of diagnosis. However, there may be a role for detection of recurrent disease and the assessment of residual masses after chemotherapy. For example, PET does appear to be a useful tool in seminoma patients when evaluating post-chemotherapy residual masses. In a series of seminoma patients who were evaluated post-chemotherapy for residual retroperitoneal masses, PET was accurate in 14/14 patients with tumors > 3 cm and in 22/23 patients with lesions < 3 cm. Overall, the sensitivity and specificity was 89% and 100%, respectively. The utility of FDG-PET in the prediction of retroperitoneal histology in NSGCT (particularly in the post-chemotherapy setting) is limited by the fact that teratoma is not FDG avid (likely due to the relatively low metabolic rate of teratomas). This likely accounts for the high false negative rates observed. Similarly, the utility of PET scanning in the immediate post-chemotherapy period appears to be limited. This is likely due to decreased metabolism and increased macrophage activity at that time, which compromises the accuracy of PET scanning. It is recommended that PET/CT be delayed for four to 12 weeks following completion of chemotherapy. There is no difference between abdominal and thoracic imaging using a PET scan in this setting.

22 A 62-year-old man develops penile pain three months after implantation of an inflatable penile prosthesis. He denies fever or chills. The prosthesis is functional and in excellent position. Tenderness is localized to the left corpus. WBC count and urinalysis are normal. The most likely cause of the penile pain is:
A. oversized cylinder.
B. prosthetic erosion.
C. corporal fibrosis.
D. staphylococcal infection.
E. psychogenic.
ANSWER=D
Prosthetic infections occur in 1-3% of patients following inflatable penile implants with antibiotic coating, and usually occur within the first three months of implantation. The most common organism is staphylococcus, and infection occurs at the time of implantation. Pain without WBC count elevation or increase in erythrocyte sedimentation rate is common. The increasing nature of the pain is not consistent with post-operative pain or pain from a traumatic event. Prosthetic erosion would be apparent on physical exam. Corporal fibrosis is an uncommon late complication of penile prosthesis. An oversized cylinder is associated with buckling and pain with prosthetic inflation.

23 A 55-year-old man with a history of chronic bacterial prostatitis experiences urosepsis during induction

chemotherapy for small cell lung cancer. Urine culture is positive for E. coli resistant to trimethoprim/sulfamethoxazole and ciprofloxacin; sensitive to nitrofurantoin, tobramycin, amikacin, and meropenem. Thorough urologic evaluation is normal except for documented persistence of the bacteria in the expressed prostatic secretions following a ten day course of I.V. meropenem. The next step is:

A. observation.
B. nightly prophylaxis with oral nitrofurantoin.
C. daily intravesical tobramycin instillation.
D. I.V. tobramycin for six to eight weeks.
E. TURP.

ANSWER=B

Observation places the patient at risk of recurrent urosepsis. This can be prevented by continued nitrofurantoin prophylaxis which will prevent recurrent cystitis and symptomatic infection. I.V. tobramycin achieves poor penetration of the prostate and is unlikely to eradicate infection. Tobramycin instillations would be effective but are more invasive than oral prophylaxis. TURP would be inappropriate in this patient. Hua VN, Schaeffer AJ: Acute and chronic prostatitis.

24 A 61-year-old woman underwent percutaneous cryoablation of a 2.4 cm renal mass one year ago. On follow-up imaging, the mass now measures 3 cm with some nodularity within the treatment zone. According to the AUA Guidelines, the next step is:

A. repeat imaging in six months.
B. repeat imaging in one year.
C. PET scan.
D. percutaneous biopsy.
E. repeat cryoablation.

ANSWER=D

There is little long-term data on the cancer control of ablative procedures. Additionally, there is a well-recognized slow natural history of RCC in terms of growth rate. Thus, if imaging findings reveal increasing size, new nodularity, satellite lesions or failure of the treated lesion to regress over time even in the absence of enhancement, then the next step should be lesion biopsy. These findings would be concerning enough to warrant an intervention rather than routine imaging in 6-12 months. There is no data to support the routine use of PET scanning in the evaluation or follow-up of patients with small renal neoplasms, although ongoing studies with newer imaging agents are underway. Repeat ablation with no biopsy is also not indicated.

25 Two months following closure of a traumatic bladder rupture associated with a pelvic fracture, a 20-year-old man has persistent urinary leakage through the suprapubic cystostomy site despite voiding. The diagnostic test most likely to diagnose the etiology of the problem is:

A. CT urogram.
B. pelvic MRI scan.
C. fistulogram.
D. cystourethroscopy.
E. urodynamics.

ANSWER=D

When faced with a patient with a persistent urinary fistula, the acronym FETID will aid the physician in determining its etiology and hence management plans: F- Foreign Body, E- Epithelization of the fistula tract, T- Tumor or chronic trauma causing persistence, I- Infection or chronic inflammation arising from inflammatory bowel disease, radiation therapy, etc. D-Distal obstruction. In this young patient with a history of persistent fistula, following closure of a bladder rupture after a pelvic fracture, persistent drainage from a suprapubic tube site is most likely from either a foreign body within the bladder, i.e., bony spicule or bladder calculi formed as a nidus from the prior indwelling suprapubic tube or bladder outlet obstruction arising from either a bladder neck contracture or urethral stricture. The single best diagnostic study is cystourethroscopy. Pressure flow urodynamic studies could demonstrate findings consistent with high-pressure voiding and outlet obstruction. But the source of the obstruction, which is likely a urethral stricture or a bladder neck contracture, would not be able to be determined by this test and this test does not rule-out the possibility of a foreign body within the bladder. A CT scan may allow one to visualize either a foreign body or bladder calculi to be present, but would not be able to assess the urinary outlet. Similarly, a fistulogram or pelvic MRI scan are unlikely to yield adequate diagnostic information in this situation to result in definitive operative plans.

26 Two days after PCNL, a patient is febrile with abdominal pain, rebound, and guarding. A nephrostogram via the nephrostomy tube opacifies the colon and the renal pelvis. The next step is antibiotics and:

A. withdraw the nephrostomy tube into the colon.
B. remove nephrostomy tube and place ureteral stent.
C. withdraw the nephrostomy tube into the colon and place a ureteral stent.
D. withdraw the nephrostomy tube into the colon and place another nephrostomy tube into the kidney.
E. abdominal exploration, diverting colostomy, nephrostomy tube.

ANSWER=E

The patient has peritoneal signs, which dictate exploration and intestinal diversion. If the patient did not have peritoneal signs, then repositioning the tube in the colonic lumen and placing a ureteral stent would be an optimal approach to prevent a nephrocolonic fistula. .

27 The use of μ-opioid receptor antagonists after radical cystectomy and urinary diversion is associated with:

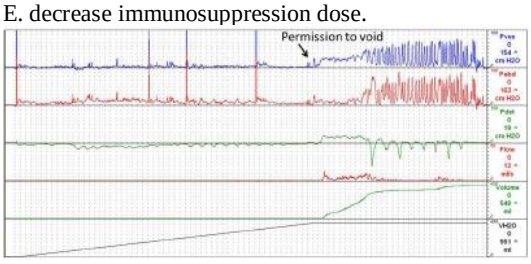
A. increased cardiac events.
B. reduced opioid consumption.
C. reduced length of stay.
D. increased hospitalization costs.
E. reduced early readmission for post-operative ileus.

ANSWER=C

Alvimopan, a peripherally acting μ-opioid receptor antagonist, is indicated to accelerate upper and lower GI recovery following surgeries that include a bowel resection. In October 2013, the U.S. Food and Drug Administration (FDA) authorized an expanded indication on the basis of a Phase 4 randomized multicenter clinical trial. In this trial, patients receiving alvimopan experienced more rapid bowel recovery and had a shorter hospital stay compared with those who received placebo. There were no differences with regard to early (< 7 day) post-op ileus (POI) or 30-day all cause readmission rates between the two groups. Alvimopan has been associated with thepotential for increased cardiac toxicity in patients with chronic narcotic use, and is therefore contraindicated in this patient population. In the aforementioned trial, such patients were excluded, and there were no differences in cardiac adverse events between the alvimopan and placebo groups. In a preplanned economic analysis of this study, alvimopan use decreased hospitalization costs by reducing health care services associated with POI and decreasing hospital length of stay; total costs were $2,640 lower per patient for alvimopan compared with placebo. The study did not address opiate consumption, but it is unlikely that a μ-opioid receptor antagonist should affect opioid intake. Instead, it would be expected to affect the peripheral effects of opioids on bowel motility.

28 A 45-year-old woman has recurrent episodes of graft pyelonephritis following a kidney transplantation two years previously. She denies voiding symptoms when she is infection-free. Her renal function is normal and cystogram reveals reflux into the transplanted kidney. Urodynamics are shown. The next step is:

A. oxybutynin.
B. mirabegron.
C. suppressive antibiotics.
D. non-refluxing ureteral reimplant.
E. decrease immunosuppression dose.



ANSWER=C

There is no consensus as to whether transplanted ureters should be reimplanted into a recipient's native bladder with an antirefluxing technique. However, there is certainly a concern that reflux of infected urine and/or reflux associated with elevated detrusor

pressures can be damaging to the transplanted kidney. This patient does not have any lower urinary tract symptoms and there is no evidence of elevated storage pressures on her urodynamic study (i.e., no detrusor overactivity and normal compliance); thus, there is no reason to initiate therapy for OAB with either oxybutynin or mirabegron. She does abdominally recruit with some degree of Valsalva voiding at the end of her micturition, but that is unlikely related to bladder infections or pyelonephritis because she empties effectively. Decreasing her immunosuppression would not address the issue of her infections, would not minimize risk of future episodes of pyelonephritis, and would only place the kidney at possible risk for rejection. Low dose suppressive antibiotic therapy would be the appropriate next step to minimize future episodes of pyelonephritis. If this is not effective then revision of her ureteral reimplant with a non-refluxing neocystostomy should be considered.

29 The best treatment for a symptomatic 1.5 cm proximal ureteral stone is:
A. medical expulsive therapy.
B. in situ SWL.
C. stent placement and SWL.
D. ureteroscopy and laser lithotripsy.
E. percutaneous stone removal.
ANSWER=D
The option with the best stone-free rate for larger ureteral stones is ureteroscopy. While SWL is acceptable, the best option is ureteroscopy for stones > 1 cm according to the data extracted in the AUA/EAU Ureteral Stone Guidelines. A stone this large would likely not pass. Percutaneous stone removal would be definitive, but should only be considered when the patient already has a pre-existing nephrostomy tube or has failed a retrograde ureteroscopic approach or SWL.

30 Compared to typical prostate adenocarcinoma, prostatic ductal adenocarcinoma often exhibits:
A. less aggressiveness and lower PSA.
B. abnormal DRE and higher PSA.
C. increased sensitivity to radiation.
D. more aggressiveness and more frequent obstructive symptoms.
E. should be treated with neoadjuvant systemic chemotherapy.
ANSWER=D
Prostatic duct adenocarcinomas arise in the periurethral prostatic ducts, and usually grow as an exophytic lesion in the urethra. They can give rise to either hematuria or obstructive symptoms, and often both are present. These tumors are often underestimated clinically because serum PSA levels and DRE are often normal. Consequently, many ductal adenocarcinomas are at an advanced stage at presentation and have an aggressive course. They are graded as 4+4=8 because of their cribriform morphologic features. These tumors should be treated aggressively and approached surgically. There is no indication that ductal adenocarcinomas are more sensitive to radiation, and similarly, chemotherapy is not indicated in this situation.

31 A 68-year-old woman with a history of a lengthy ureteral stricture developing following pelvic surgery and radiation therapy is managed with a chronic indwelling ureteral stent. At the time of stent exchange, she develops profuse bright red blood per ureteral orifice that stops within five minutes of stent placement, the next step is:
A. observation and stent exchange in three months.
B. placement of nephrostomy tube and removal of the ureteral stent.
C. radiologic placement of an endovascular stent.
D. oversewing of arterial fistula, ureteroureterostomy, omental wrap around the ureter, and extraperitoneal lateralization of the ureter.
E. vascular bypass procedure and nephrostomy tube placement.
ANSWER=C
Arterioureteral fistula (AUF) is a rare but acute condition that predominantly affects women (> 70%) with a wide time range between the initial placement of the ureteral stent to fistulization, ranging from 2 to 25 years. Factors that should raise suspicion of an AUF include history of hematuria in a patient with indwelling ureteral stents especially in patients with a past medical history of prior abdominal or pelvic irradiation, pelvic surgery or aortoiliac or aortofemoral grafts. Although 55% of patients will present with a history of persistent gross hematuria plus or minus shock, 45% of patients present with herald bleeding (gross hematuria occurring from the ureteral orifice during a ureteral stent exchange.) When herald bleeding occurs as in the patient in this question, treatment should be pursued to prevent a possible exsanguinating emergent fistula complication. The diagnostic goal in these patients is to identify the specific location of the fistula. In patients with bilateral indwelling stents, the side in which the gross hematuria is found is helpful for locating the side involved but is nonspecific in nature. Computed tomographic angiography will document the location in < 40% of patients. However, it may be useful because it can identify a concurrent periarterial abscess, aneurysmal enteric communication, aneurysmal dilation, significant arterial calcification, and concomitant thrombus. Diagnostic provocative angiography with selective iliac views remains the gold standard and is 90% diagnostic. Provocative angiography will require exchange of the double-J ureteral stent for a straight ureteral catheter. This will allow the interventionalist the ability to manipulate the ureteral stent at time of angiography to induce bleeding and identify the site and location of the fistula. While exchanging the stent, it is imperative not to lose access to the ureter; this procedure is best done in an endovascular suite with an operative team immediately available. It should be noted that a minority of patients, 10% will be empirically treated for an AUF without identification of the exact AUF location. These individuals will have a history of herald hematuria with predisposing factors for AUF and no other identifiable source of urinary bleeding. Prior studies have documented that once the AUF has developed, simple removal of the stent is inadequate for fistula closure. Previously, open repair of the fistula (often with vascular bypass procedure of the affected vessel and percutaneous nephrostomy tube placement) was the standard therapy. However, recent advances in endovascular stents have made this the least morbid procedure and the best initial therapeutic option. It is noteworthy that after placement of an endovascular graft, greater than 60% of the patients are still treated by chronic ureteral stent drainage along with chronic antibiotic prophylaxis, while the remaining 40% are managed by either permeant ipsilateral nephrostomy tube drainage or nephrectomy.

32 A 32-year-old anorexic woman with a history of seizures has recurrent urolithiasis. On a 24-hour urine, pH is 7.0 and urinary citrate is 45 (normal > 450 mg/day) The medication responsible for her stone disease is:
A. indinavir.
B. guaifenesin.
C. carbamazepine.
D. topiramate.
E. ephedrine.
ANSWER=D
Drug-induced renal calculi represent 1-2% of all renal calculi. They include two categories: those resulting from the urinary crystallization of a highly excreted, poorly soluble drug or drug metabolite, and those due to the metabolic effects of a drug. Four drugs that can induce calculi through precipitation of the medication or its metabolite include: 1) Indinavir, a protease inhibitor used to treat HIV infections, 2) Magnesium Trisilicate, an antacid used to treat gastroesophageal reflux, 3) Triamterene, a potassium sparing diuretic used to treat edema and hypertension, 4) Ephedrine used in a variety of nutritional or energy supplements for its stimulant properties, can when used alone or in combination with guaifenesin, the combination used as an expectorant, induce calculi containing either ephedrine, or both ephedrine and guaifenesin. Five commonly used medications may induce physiologic changes that can lead to metabolic abnormalities that facilitate the formation of calculi these include: 1) Loop diuretics (Furosemide, Lasix), it is noteworthy that up to two thirds of low-birth-weight infants who have received furosemide therapy will develop precipitation of calcium crystals, 2) Carbonic anhydrase inhibitors, drugs such as acetazolamide (Diamox), used to treat glaucoma, altitude sickness, and epilepsy, and 3) topiramate (Topamax), an anticonvulsant medication used to treat refractory seizures, can produce severe hypocitraturia and high urinary pH, and will induce calcium phosphate calculi in up to 2% of patients on long- term therapy, 4) Zonisamide (Zonegran), a sulfonamide anticonvulsant will result in the formation of calcium phosphate calculi in 4% of the patients on this mediation, 5) potential laxative abuse should be considered when ammonium acid urate calculi are found in the absence of UTI or bowl disease. Carbamazepine (Tegretol) used to treat seizure disorders, nerve pain and bipolar disorder is not known to be associated with urolithiasis.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis,

33 A 66-year-old man undergoes a radical cystectomy and ileal conduit for pT2N0 urothelial carcinoma of the bladder. Final pathology demonstrates CIS at the right ureteral margin. The next step is:
A. surveillance.
B. brush biopsy of ureteral anastomosis.
C. BCG via nephrostomy tube.
D. distal ureterectomy and reimplantation.
E. nephroureterectomy.
ANSWER=A
Every reasonable effort should be made to obtain a negative proximal margin before re-implantation when a frank tumor is encountered at the margin. However, the findings of CIS at the ureteral margin (either at the time of frozen section or on final pathology) is more uncertain. The group at Memorial Sloan Kettering has questioned the value of achieving a negative margin because this did not alter the risk of development of subsequent upper tract tumor and CIS of the ureter is not independently associated with a worse outcome following cystectomy. Cancer recurrence at the anastomosis is rare even with a positive margin showing CIS, but a positive margin is a risk factor for developing a second primary tumor of the ureter or renal pelvis. Schumacher and colleagues demonstrated that upper tract recurrences occur in 3% to 5% of patients, and they are usually at sites distant from the anastomosis. However, they found no correlation between frozen and permanent section findings in their cohort. Accordingly, the data would suggest that patients with CIS at the ureteral margin may have a mildly increased risk of an upper tract recurrence (often remote from the margin, either on the ipsilateral or contralateral side). As a result, such patients (like all patients with invasive bladder cancer) require close follow-up with upper tract surveillance. Although the most commonly performed method of upper tract surveillance is with imaging (e.g., CT urogram), the most sensitive means involves surveillance ureteroscopy, and this can be used in patients with a very high degree of suspicion for upper tract recurrence. The median time to occurrence in one recent series was 53 months. Pre-emptive antegrade brush biopsy is not indicated at this time in the absence of obstruction or other abnormalities in imaging. BCG is also not indicated, as the finding of CIS at the margin only suggests a slightly increased incidence of recurrence, and often this recurrence is at a location remote from the margin site. Similarly, pre-emptive re-implantation or ipsilateral nephroureterectomy are not indicated or warranted as most patients will not have a local recurrence or ipsilateral upper tract recurrence.

34 A 57-year-old man develops fever, nausea, and increasing abdominal pain seven days following a laparoscopic nephrectomy. Despite bowel rest and antibiotics, he develops worsening symptoms. A KUB reveals free air in the abdominal cavity with dilated loops of small bowel. The next step is:
A. abdominal ultrasound.
B. barium enema.
C. CT scan of the abdomen with I.V. contrast.
D. CT scan of the abdomen with oral contrast.
E. immediate surgical exploration.
ANSWER=D
During laparoscopic surgery, electrosurgically induced thermal injury may occur via one of four mechanisms: inappropriate direct activation, coupling to another instrument, capacitive coupling, and insulation failure. Intraoperatively, thermal injuries of the bowel may present as whitish spots on the serosal lining. In severe cases, the muscularis mucosae or the intestinal lumen may be seen. However, in many patients, thermal injury of the bowel is not realized at the time of the procedure. Postoperatively, the patient with unrecognized bowel trauma may not develop fever, nausea, or signs of peritonitis for three to seven days; the full extent of the bowel necrosis may take up to 18 days to fully develop. Therefore, the problem often does not become manifest until the patient has been discharged. Accordingly, bowel injury must be ruled-out for any patient who develops a fever beyond postoperative day one or who complains of increasing abdominal discomfort. Abdominal radiographs are notoriously inaccurate because the carbon dioxide from the laparoscopy may remain as "free air" for more than two weeks after the procedure; however, an ileus pattern is usually present. An abdominal ultrasound will similarly be nonspecific and may detect loops of bowel or free fluid. The more sensitive test is an abdominal CT scan with oral contrast and delayed films. Minor postoperative thermal injuries of the bowel may be managed conservatively, aided by administration of antibiotics and an elemental diet. However, if the patient does not respond rapidly or develops worsening peritonitis, open surgical exploration is mandatory. Thermal injury caused by monopolar cautery often results in tissue damage that extends beyond the visible area of necrosis. With this in mind, the surgeon should perform a bowel resection with a safety margin of 6 cm on either side before completing an end-to-end anastomosis. Thermal injury caused by bipolar electrosurgery is more confined to the visible area of damage; thus, if the injury is small, it can be managed by simple excision of the defect and closure of the bowel wall. Injuries that involve more than half of the circumference of the bowel should be treated by excision of the affected bowel segment and end-to-end anastomosis.

35 The most important benefit of using 60 versus 120 shocks per minute for SWL of a 9 mm proximal ureteral stone is: A. reduced number of shocks.
B. reduced renal damage.
C. reduced anesthetic requirement.
D. reduced steinstrasse rate.
E. reduced retreatment rate.
ANSWER=E
Decreasing the rate of shock wave administration from 120 to 60 shocks per minute results in improved stone-free rates. A slower treatment rate of proximal ureteral stones reduces the need for additional SWL or more invasive treatments to render patients stone-free without any increase in morbidity and with an acceptable increase in treatment time. The hypothesized mechanism of this effect is due to the formation of cavitation bubble cloud around the stone, which may shield the stone from subsequent shock waves. This effect is most pronounced at higher shock wave frequency.

36 A 52-year-old woman has an incidentally-detected right renal lesion on triphasic CT scan. The lesion is classified as complex due to a few hairline septae with fine calcifications noted within the wall, Hounsfield units of 8 is noted. The next step is:
A. no follow-up necessary.
B. ultrasound in six months.
C. CT scan in six months.
D. CT scan in one year.
E. biopsy or fine needle aspiration of lesion.
ANSWER=A
Bosniak classifications of renal cysts are: 1) Simple hairline thin cyst wall, Hounsfield units < 10. 2) Simple hairline thin cyst wall, few hairline thin septa within cyst, short, thin areas of calcification maybe present, septa and wall do not enhance, Hounsfield units < 10. The patient described in the question has a Bosniak 2 cyst. No follow-up evaluation is indicated for a class 1 or 2 Bosniak cyst. 2F) Thickened cyst wall, multiple septa that may be thickened or contain calcium, Hounsfield units of 10-15 no significant enhancement with contrast. Follow-up is indicated due to an increased risk of malignancy (5-10%). These cysts should therefore undergo periodic surveillance with no set time limit; evaluations every 6-12 months have been purposed. Biopsy is not indicated due to poor reliability in sampling areas of concern. 3) Cystic mass with thickened wall, thick irregular septum, cyst wall or septa enhance with contrast, Hounsfield units >15. 4) Cystic mass with thickened wall, thick irregular septum, cyst wall, septa, and areas within cyst, not associated with the wall or septa enhance, Hounsfield units >15. Both Bosniak 3 and 4 cysts should at a minimum be considered for a biopsy or alternatively surgical excision. ,

37 A 68-year-old man with bothersome voiding dysfunction completes a voiding diary revealing 12 voids in 24 hours with volumes ranging from 30 ml to 150 ml, nocturia x 3, and one episode of incontinence. PVR is 50 ml. Uroflowmetry reveals a flattened pattern with a peak flow of 6 ml/sec. His condition is best described as:
A. BPH.
B. benign prostatic obstruction.
C. detrusor overactivity.
D. detrusor underactivity.
E. LUTS.

ANSWER=E
BPH is a histological diagnosis. This patient has not had a biopsy. Benign prostatic obstruction is a urodynamic diagnosis made on the basis of the relationship between pressure and flow. The poor flow rate in this case may be due to either detrusor underactivity or bladder outlet obstruction and is not diagnostic of either entity. Detrusor overactivity and detrusor underactivity are urodynamic diagnoses that cannot be made in the absence of a urodynamic study. LUTS is a generic term describing lower urinary tract symptoms and does not imply an underlying pathology or pathophysiology.

38 According to the AUA Guidelines, a patient with progressive metastatic castrate resistant prostate cancer having pain controlled with acetaminophen should be offered treatment with:
A. observation.
B. sipuleucel-T.
C. cabazitaxel.
D. radium-223
E. mitoxantrone.

ANSWER=B
The patient presented here is Index Patient 2 of the AUA Guidelines and should be considered for sipuleucel-T immunotherapy. This patient is only minimally symptomatic (not requiring narcotics) and thus is a candidate for sipuleucel-T, which has demonstrated a survival advantage in this patient population. Abiraterone acetate is also an option but is not listed here. The other treatment options are not appropriate for Index Patient 2. Cabazitaxel is indicated for patients who have failed prior docetaxel chemotherapy. Radium-223 in general is reserved for patients with symptomatic bone metastases. Mitoxantrone has not been shown to provide a survival advantage and in general has been used for palliative purposes in symptomatic patients.

39 A 35-year-old woman with urinary urgency and frequency has a pelvic mass and gross hematuria. Cystoscopy and biopsy of the mass reveals endometriosis. A CT cystogram after four months of a GnRH agonist is shown. The next step is:
A. CT urogram.
B. repeat biopsy of mass.
C. transurethral resection of mass.
D. partial cystectomy.
E. radical cystectomy with urinary diversion.
ANSWER=A
This patient has a persistent mass following hormonal therapy for endometriosis invading the bladder. She had an adequate trial of GnRH agonist therapy. The next step is upper tract imaging; this test should be obtained in all patients with pelvic endometriosis prior to and following hormonal therapy, and again prior to surgical intervention due to the potential for silent upper urinary tract obstruction which can occur in 10-20% of these women. Repeat biopsy of the bladder mass, endoscopically or percutaneously, is unlikely to be helpful as it will show either fibrosis or persistent endometriosis. Partial or radical cystectomy is overly aggressive and certainly not indicated until the upper tracts have been evaluated. An anatomic study with CT urogram will provide more information than nuclear renography and will complete the hematuria workup.

40 The diminished long term effectiveness of thiazides in the treatment of hypercalciuria is mediated by:
A. increased dietary sodium.
B. increased serum calcitonin.
C. increased parathyroid hormone.
D. decreased urinary magnesium.
E. increased gastrointestinal absorption of calcium.
ANSWER=B
Thiazide diuretics will lose their effectiveness in the treatment of hypercalciuria in up to 25% of patients on long-term management. The loss of effectiveness is due to increased serum calcium levels which stimulate the C cells in the thyroid to produce more calcitonin. Increased calcitonin leads to increased urinary calcium excretion. Increased dietary calcium, decreased patient compliance, increased GI absorption or increased PTH could all lead to hypercalciuria, but are not the proposed mechanisms for tachyphylaxis with thiazides.

41 A 25-year-old woman has recurrent pan-sensitive E. coli UTIs with urgency and frequency but no fever. The next step is:
A. post-coital voiding.
B. nightly trimethoprim-sulfamethoxazole.
C. nightly fluoroquinolone.
D. abdominal ultrasound.
E. cystoscopy.
ANSWER=B
In women with recurrent symptomatic UTI, continuous low-dose antibiotic prophylaxis or if the recurrent UTI can be related to intercourse post-coital antibiotics are indicated. Appropriate antibiotics include: trimethoprim-sulfamethoxazole, nitrofurantoin, and cephalexin. Fluoroquinolones should be reserved for instances of bacterial resistance or allergy. Therapy is usually continued for six months followed by a trial period off prophylaxis. Other strategies such as post-coital voiding, changing to cotton underwear, wiping away from the urethra and avoidance of hot tubs have not been shown to decrease the rate of infections. Cystoscopy is not indicated for recurrent simple cystitis in women. .

42 A novel medication is being studied to determine efficacy in reducing urinary frequency in patients with overactive bladder. The best statistical method to compare the mean number of voiding episodes per day in three groups of subjects receiving either one of two doses of the medication or placebo is:
A. ANOVA (analysis of variance).
B. chi-square test.
C. Pearson r test.
D. t-test.
E. Spearman rank order.
ANSWER=A
ANOVA (analysis of variance) is used when comparison is being made between the mean of more than two groups. A t-test is used to make comparison between the mean of two groups. Chi-square test is used to compare differences in proportions. Pearson r test is used to evaluate the strength and direction of an association.

43 A 65-year-old woman undergoes a retropubic midurethral synthetic sling and is unable to void after surgery. At one month, she is still catheterizing herself and is unable to void on her own. The next step is: A. continue CIC and reassess at three months.
B. urethral dilation.
C. sling incision.
D. transvaginal urethrolysis.
E. suprameatal urethrolysis.
ANSWER=C
It is very unlikely that this patient, who is in complete urinary retention one month after a retropubic mid-urethral sling, will resume normal voiding. If the patient had undergone an autologous sling, it would be appropriate to wait three months before intervening as spontaneous sling loosening may occur with resorption of the sling. In this patient with a synthetic sling, if she desires to void spontaneously, she will need to have the sling loosened or cut. Sling loosening may be attempted within the first week to ten days after surgery, but this must be done surgically by exposing the sling and attempting to loosen it and not by urethral dilation. If loosening is not selected or is ineffective, the sling will need to be cut. Incision of the synthetic sling will restore voiding in approximately 90% of patients; however, recurrent stress incontinence may occur in 15- 20% of patients. Transvaginal urethrolysis is indicated when an incision does not work or if the urethra is felt to be fixed to the underside of the pubic symphysis. Suprameatal urethrolysis is unnecessary following mid-urethral sling procedures, as there is very little scarring immediately anterior to the urethra, and the obstruction is presumably due to excessive obstruction from the suburethral sling. Classically, suprameatal urethrolysis is indicated for obstruction following a Marshall-

Marchetti-Krantz procedure, or for persistent obstruction following sling incision and/or transvaginal (submeatal) urethrolysis.

44 In utero myelomeningocele closure has a favorable impact on:
A. incidence of spinal cord tethering.
B. bladder continence.
C. bowel function.
D. the need for ventriculo-peritoneal shunting.
E. complications at delivery.
ANSWER=D
The need for ventriculo-peritoneal shunting was found in approximately 70% of the infants in the prenatal-surgery group and 98% of those in the postnatal-surgery group. Prenatal surgery also resulted in improvement in the composite score for mental development and motor function at 30 months (p=0.007) and an improvement in several secondary outcomes, including ambulation by 30 months. However, prenatal surgery was associated with an increased risk of preterm delivery and uterine dehiscence at delivery.There has been no documentation of a positive effect on the incidence of spinal cord tethering, urinary continence or bowel function with in utero myelomeningocele repair. In non-randomized, controlled studies, prenatal surgery has not been shown to result in improved bladder dynamics nor function compared to historical controls.

45 A risk factor for systemic allergic-type reactions to radiocontrast media is:
A. povidone-iodine (Betadine) allergy.
B. African-American ethnicity.
C. asthma.
D. obesity.
E. diabetes.
ANSWER=C
Urologists frequently obtain imaging studies utilizing I.V. contrast agents that are often performed in the office under their direct supervision. Since use of these agents is associated with adverse events including potentially life-threatening anaphylactic-like reactions, an appreciation of the risk factors predisposing to these adverse events is essential. Adverse reactions to radiocontrast media are classified as either systemic allergic-type reactions or chemotoxic-type reactions. Chemotoxic events arise as a result of the physiochemical properties of radiocontrast agents, and include contrast-induced renal failure and seizures. Individuals with poor renal function, diabetes and intravascular volume depletion are predisposed to these events. Obesity, due to its association with metabolic syndrome and diabetes, is a known risk that increases the patient's susceptibility to a chemotoxic event. System allergic-type reactions occur due to the release of active cellular mediators that can result in urticaria, bronchospasm, laryngeal edema, hypotension, and anaphylaxis-like reactions. Patients who have a history of multiple systemic allergies (drug or nutritional allergies) or a history of asthma account for an inordinately large percentage of patient with allergic reactions. In point of fact a history of asthma results in a 3-5x increased risk of a systemic allergic type of reaction to radiocontrast media. "Allergy" to Betadine is a type of contact dermatitis and not associated with increased risk. There does not appear to be any racial differences in risk to either type of event. .

46 A 64-year-old, T4 paraplegic man on CIC is admitted for treatment of pneumonia. He suddenly develops a severe headache and has a heart rate of 42 bpm, and blood pressure of 210/130 mmHg. The next step is:
A. sublingual nifedipine.
B. sublingual terazosin.
C. oral nitroglycerine.
D. nitroglycerine paste.
E. place a urethral catheter.
ANSWER=E
Autonomic dysreflexia (AD), a syndrome of unopposed sympathetic discharge classically occurs in patients with a complete spinal cord injury (SCI) at or above T-6 (above the T10-L2 sympathetic outflow. This dysreflexic response will typically occur secondary to, visceral distension (bladder or bowel), or pain stimulation below the level of the lesion. Symptoms classically are sweating and diaphoresis above the level of the lesion, a blood pressure rise of > 20 mm Hg over baseline levels, headache and bradycardia. In the treatment of AD, it should always be assumed that the bladder is distended and/or the urethral catheter malpositioned. Drainage of the bladder, placement of a urethral catheter, or verification that an indwelling catheter is functional and in the correct position, should always be the first step in management. All clothing should subsequently be loosened and the patient's upper torso should be elevated. If these maneuvers do not result in a decrease in blood pressure, topical or oral nitroglycerin is the recommended first line medical therapy. Topical nitroglycerin is preferred due to the ability to wipe off the medication from the skin if rebound hypotension should occur. Prior to nitroglycerin use, it must be verified that the patient has not taken a PDE-5 inhibitor within the prior 24 hours, the combination of NTG and a PDE-5 inhibitor increases the risk of severe rebound hypotension. If the patient has used a PDE-5 inhibitor, captopril 25 mg given sublinguinally or chewed is the drug of choice. Sublingual nifedipine once routinely recommended for this complication is no longer the drug of choice due to variable absorption, and episodic rebound hypotension that has resulted in strokes or myocardial infarction. If the blood pressure does not improve rapidly or rebound, hypertension develops the patient should be examined for other causes of AD including fecal impaction, renal or bladder calculi, decubitus ulcers and asymptomatic broken bones.

47 During testosterone replacement therapy for androgen deficiency, significant mood swings, and variations in libido are most likely to develop when using:
A. testosterone enanthate.
B. testosterone gel.
C. transdermal testosterone patch.
D. methyltestosterone.
E. subcutaneous testosterone pellets (Testopel^TM).
ANSWER=A
Parenteral testosterone injection therapy (testosterone enanthate or cypionate) will cause significant peaks and valleys in serum testosterone levels which can cause mood swings and variations in libido and potency ("roller-coaster" effect). Oral, subcutaneous, and transdermal preparations do not have this "roller-coaster" effect. The alkylated oral androgens, e.g., fluoxymesterone, methyltestosterone, have serious liver toxicity and adverse effects on serum lipids (increased LDL, decreased HDL) and should not be used. .

48 An eight-year-old boy with a large expanding cystic right testicular mass has normal tumor markers and organ confined mature testicular teratoma on radical orchiectomy. The next step is:
A. serial examination.
B. abdomen and pelvis CT scan.
C. serial tumor markers.
D. RPLND.
E. platinum-based chemotherapy.
ANSWER=A
A presumptive diagnosis of testicular teratoma can often be made based on testicular ultrasound findings. When a prepubertal testicular teratoma is expected it should be approached via an inguinal incision with vascular control of the spermatic cord. Juvenile testicular teratomas may be treated by either partial orchiectomy or orchiectomy depending upon the size of the mass. This prepubertal boy had a unilateral mature testicular teratoma that has been completely resected with radical orchiectomy. In a prepubertal boy, this is a benign lesion and can be followed with serial annual examinations if an orchiectomy was performed, or serial annual testicular ultrasound evaluations if a partial orchiectomy or enucleation was performed. Follow-up should be through puberty to verify adequate hormonal function of the contralateral testis. In a patient with a prepubertal testicular teratoma there is no need for further CT scans, tumor markers, surgery, or chemotherapy. However, mature teratoma in the pubertal child or postpubertal adolescent has a clinical behavior similar to adults and should be managed with a standard post-orchiectomy protocol for NSGCT.

49 A man with erectile dysfunction is given a test dose of intraurethral alprostadil 1000 mcg, and achieves complete rigidity. He complains of penile, scrotal, and leg pain during the erection. The next step is: A. reassurance.
B. oral terbutaline.
C. intraurethral lidocaine.

D. methylene blue intracavernosal injection.
E. phenylephrine intracavernosal injection.
ANSWER=A
The overall success rate for obtaining an erection with intraurethral alprostadil is approximately 55%. If it is successful in producing an erection, the most common side effect is penile pain that can include the scrotum and extremities. No treatment is needed for this pain, but it can be dose limiting in some patients. Terbutaline, methylene blue and Neo-Synephrine are useful for the treatment of priapism, which this patient does not have. No data is available for the use of ibuprofen with PGE-1 induced pain and it is unlikely to work based on ibuprofen's mechanism of action.

50 Compared to a normal kidney, the percutaneous access for nephrolithotomy in the kidney shown will be more:
A. superior and medial.
B. inferior and medial.
C. superior and lateral.
D. inferior and lateral.
E. posterior and medial.
ANSWER=B
The horseshoe kidney is positioned more inferior, anterior and medial than a normal kidney. The upper pole is typically subcostal and superficial, making it the best option for percutaneous access. The medial position of the kidney often requires a percutaneous tract that passes through the paraspinous musculature.

51 The right adrenal vein enters:
A. right renal vein.
B. right inferior phrenic vein.
C. right gonadal vein.
D. IVC.
E. ascending lumbar vein.

ANSWER=D
The right adrenal vein enters the IVC directly on its posterolateral aspect. It does not enter other veins between the adrenal gland and the IVC as occurs on the left side. The left adrenal vein joins with the left phrenic vein and enters the cranial aspect of the left renal vein. The lumbar vein and left gonadal vein enter the left renal vein but do not receive the adrenal vein.

52 Three years after placement of a sacral neuromodulator for refractory urinary urgency and urgency incontinence, a 45-year-old woman develops new symptoms of blurred vision, numbness in her lower extremities, and significant exacerbation of her urinary symptoms. The next step is:
A. anterior, posterior and lateral radiograph of the sacrum.
B. reprogramming of the device.
C. MRI scan of the brain and spine.
D. surgical revision of the impulse generator.
E. removal of the device.
ANSWER=E
This patient has progressive urologic symptomatology that is refractory to a therapeutic modality that was once effective. When the physician encounters a patient with progression of the severity of symptoms, particularly in conjunction with new neurologic symptoms, a neurologic diagnosis such as multiple sclerosis should be considered. Performance of MRI (below the neck) is important in establishing the diagnosis of a neuropathic disease, and is contraindicated in patients with a sacroneuromodulation device in place. Therefore, it must be removed to allow this patient to proceed with the diagnostic MRI scan. Although evaluation of the position of the lead, consideration of reprogramming of the device, surgical revision of the device (pending the effects of reprogramming), or change in treatment modality might all be reasonable, in a patient without progressive neurologic deterioration they are not reasonable alternatives in this clinical scenario.

53 A 38-year-old woman with recurrent nephrolithiasis has a serum calcium of 10.8 mg/dl and serum parathyroid hormone level of 85 pg/ml. After administration of thiazide, serum calcium is 11.8 mg/dl. She is currently stone free. The treatment that will best reduce her risk of nephrolithiasis is:
A. sodium restriction.
B. potassium citrate.
C. low calcium diet.
D. orthophosphates.
E. parathyroidectomy.
ANSWER=E
Hyperparathyroidism should be suspected in patients with renal calculi and serum calcium levels over 10.1 mg/dl. In patients with suspected hyperparathyroidism, a thiazide challenge may unmask subtle primary hyperparathyroidism by increasing proximal tubular resorption of calcium resulting in a significant rise in serum calcium. The treatment of patients with primary hyperparathyroidism and renal calculi is parathyroidectomy, with over 90% improvement in calculus recurrence. In patients who present with symptomatic or obstructive renal calculi and who are not in hypercalcemic crisis, the calculi should be treated prior to the parathyroid gland.

54 A novel medication is being studied for the treatment of urinary frequency. The best statistical method to compare the mean number of voiding episodes per day in subjects receiving the medication versus those receiving placebo is:
A. chi-square test.
B. ANOVA (analysis of variance).
C. Pearson r test.
D. t-test.
E. Spearman rank order test.
ANSWER=D
The t-test is the most commonly used method for comparison of means between two groups. Chi-square analysis is the most important nonparametric test and is used to compare proportions. ANOVA is the appropriate test when more than two groups are being compared. Pearson's r test is used to evaluate strength and direction of the relationship between two interval variables.

55 Three years following placement of a retropubic midurethral sling, a 58-year-old woman has recurrent stress urinary incontinence. Valsalva LPP is 32 cm H2O with a stable bladder and a capacity of 400 ml. The urethra is well-supported. The best option is:
A. pelvic floor muscle training.
B. imipramine.
C. Burch urethropexy.
D. transobturator sling.
E. autologous fascial sling.
ANSWER=E
Indications for autologous sling include a severely dysfunctional urethra, as indicated by low LPP (0-60 cm H2O), loss of urethral tissue (e.g., following synthetic
mesh erosion into the urethra, urethral diverticulectomy, or urethrovaginal fistula repair), and multiple previous anti-incontinence procedures. While the other options listed are reasonable options to discuss with patients, this patient's low LPP and her history of previous surgery make autologous sling the best option of those listed.

56 A 60-year-old paraplegic woman with multiple medical problems has an ileal conduit because she was unable to perform intermittent catheterization. She develops pyocystis unresponsive to three weeks of oral ciprofloxacin. Pyocystis recurs one week following three days of intravesical bladder irrigation with neomycin. The next step is:
A. formalin bladder irrigation.
B. suprapubic cystotomy.
C. broad spectrum I.V. antibiotics.
D. vesicovaginostomy.
E. convert to ileovesicostomy.
ANSWER=D
Pyocystitis may be a complication following supravesical diversion in individuals with a neurogenic bladder when a cystectomy is not

performed. The failure of irrigation therapy to permanently suppress recurrent pyocystitis is an indication for surgical intervention. Vesicovaginostomy allows the bladder to drain and usually results in symptomatic improvement in patients who have pyocystitis unresponsive to standard treatment. In this woman, vesicovaginostomy would be a significantly less morbid option than simple cystectomy.

57 A six-year-old boy undergoes right pyeloplasty and pyelolithotomy for UPJ obstruction and 1 cm renal pelvic stone. The stone is composed of calcium oxalate. Three months post-op, ultrasound shows improved hydronephrosis and diuretic renography shows no obstruction. The next step is:
A. observation.
B. metabolic stone evaluation.
C. low oxalate diet.
D. hydrochlorothiazide.
E. potassium citrate.
ANSWER=B
The incidence of renal calculi in patients with UPJ obstruction is nearly 20%. Husmann and colleagues reported a 70-fold increased risk of stone formation in the pediatric population with UPJ obstruction. Although the obstruction plays a role in stone formation, several studies have demonstrated that patients with UPJ obstruction and concurrent renal calculi carry the same metabolic risks as other stone formers. Correction of UPJ obstruction did not prevent recurrent stones in most patients, and thus metabolic evaluation, rather than annual urinalysis alone, is the correct next step. Based on the findings of the metabolic evaluation, treatments such as dietary changes, potassium citrate, or hydrochlorothiazide may be appropriate, but not until the work-up is completed. Despite the fact that this was discovered during the evaluation of a UTI, antibiotic prophylaxis is not indicated.

58 A unique challenge of robotic vesicovaginal fistula repair as compared to robotic sacrocolpopexy is:
A. adequate exposure.
B. ease of suturing.
C. maintaining pneumoperitoneum.
D. avoiding ureteral injury.
E. port site complications.
ANSWER=C
Repair of vesicovaginal fistula, whether via an open or minimally invasive technique, requires adherence to basic principles of fistula repair. These include: adequate excision of the fistula, use of healthy tissues for repair, performance of a tension free anastomosis with multi-layered closure, interposition with omentum, and adequate bladder drainage. However, the challenge of a minimally invasive approach is losing pneumoperitoneum after the fistula is excised. Techniques such as packing gauze in the vagina and clamping the urethral catheter are helpful but they do not seal the opening adequately to maintain pneumoperitoneum and thus can make suturing more difficult. If pneumoperitoneum is maintained, exposure and ease of suturing should be no different. Risk of ureteral injury and port site complications should not differ between the procedures.

59 Eighteen hours after a radical nephrectomy, a 35-year-old man has a high grade fever, pain, and impressive erythema at the operative site associated with a thin, watery discharge from the incision. The infection is most likely caused by:
A. Clostridium perfringens.
B. beta-hemolytic streptococci.
C. Staphylococcus aureus.
D. Pseudomonas aeruginosa.
E. Candida albicans.
ANSWER=B
Streptococcal and Clostridial wound infections are characteristically invasive, painful, and occur within 24 hours after surgery. A thin, watery purulent discharge without frank abscess formation or foul smell is characteristic for Streptococcal infections. Clostridial infections are usually associated with intraoperative fecal contamination; the discharge is gray or reddish brown and foul smelling, and associated with wound crepitus and necrosis. Treatment should include systemic high dose penicillin. Opening of the surgical wound with debridement and drainage is necessary only if there are signs of crepitus or wound fluctuance or wound margin necrosis. Staphylococcal infections usually occur > 24 hours postoperatively, and are characterized by a localized indurated area of cellulitis with associated abscess formation with a thick yellow or cream-colored pus. Postoperative wound infections caused by enteric bacilli have a longer incubation period than those caused by staphylococcus. .

60 A four-year-old boy who recently emigrated from Ethiopia has gross hematuria. There is no history of UTI. KUB demonstrates a 2 cm bladder stone. The most likely stone composition is:
A. ammonium acid urate.
B. calcium oxalate.
C. calcium phosphate.
D. cystine.
E. struvite.
ANSWER=A
Primary idiopathic (endemic) calculi form in children, most commonly from North Africa, the Middle East and Far East. With a large immigrant population in the United States, it is important to be aware of this health problem. These children rely on a cereal- based diet that is lacking in animal proteins. This leads to a dietary phosphate deficiency, low urinary phosphate and high peaks of ammonia. Due to this, the most common stone is ammonium acid urate. Though chronic dehydration can lead to calcium oxalate and uric acid stones, high urinary sodium, calcium and oxalate are not characteristic findings with endemic bladder stones.

61 A 55-year-old woman has dyspareunia several months after a mid-urethral sling. She has no residual urinary symptoms. Examination reveals 2 cm of mesh exposure along the anterior vaginal wall and urinalysis is normal. The next step is:
A. observation with secondary healing.
B. topical estrogen cream.
C. excision of exposed mesh and closure of vaginal wall defect.
D. excision of exposed mesh and repeat synthetic midurethral sling.
E. excision of exposed mesh and autologous fascial sling.
ANSWER=C
This patient would benefit from mesh excision and closure of the defect. Patients with asymptomatic vaginal mesh exposure can be observed. However, if symptomatic or desiring definitive treatment, the exposed mesh should be removed. Factors responsible for mesh exposure include poor vaginal tissue quality, excessive sling tension, infection, and type of graft material. Multifilament products appear to have greater risk for exposure compared to monofilament products and larger pore sizes in the graft decrease the risk of exposure. It is unlikely an exposure of this size would heal secondarily or with the use of topical estrogens. The majority of patients undergoing removal of exposed mesh do not have recurrent stress urinary incontinence postoperatively; thus, a concomitant sling is unnecessary. Rovner ES: Complications of female incontinence surgery,

62 The finding on a high dose dexamethasone suppression test (2 mg every six hours) that establishes the diagnosis of Cushing's disease is:
A. suppression of urinary 17-hydroxycorticosteroids.
B. no change in urinary 17-hydroxycorticosteroids.
C. elevation of urinary 17-hydroxycorticosteroids.
D. suppression of urinary 17-ketosteroids.
E. elevation of serum ACTH.
ANSWER=A
Cushing's syndrome may be caused by an adrenal tumor, ectopic ACTH production, and by excessive pituitary ACTH secretion (Cushing's disease). The basis of the high dose dexamethasone suppression test is that ACTH secretion in patients with Cushing's disease is not completely, but only partially, resistant to glucocorticoid feedback inhibition. Therefore, by increasing the dose of dexamethasone, pituitary secretion of ACTH is suppressed in patients with Cushing's disease and glucocorticoid production is reduced. In contrast, dexamethasone has no effect in patients with adrenal tumors and ectopic ACTH production, since their pituitary glands are already suppressed. Serum cortisol may be used instead of urinary parameters.

63 Prenatal ultrasonography in a 22-week fetus shows bilateral hydroureteronephrosis. The parameter most predictive of a poor postnatal renal outcome is:
A. oligohydramnios.
B. a persistently distended bladder.
C. diameters of the renal pelves.
D. renal cortical thinning.
E. echogenic kidneys.
ANSWER=A
At this stage of gestation, 90% of the amniotic fluid volume is derived from the fetal urine production. Oligohydramnios early in pregnancy nearly always predicts a poor renal outcome. Echogenicity is more subjective and may be indicative of dysplasia, but is not always predictive of a poor renal outcome. Although concerning, a kidney with thinned renal cortex may have normal function. The thinned cortex may simply be an anatomical or physical reflection of the severity of the obstructive process. A distended bladder may be normal or may only be indicative of VUR, and the cycling of refluxed urine that over time will cause stretching and expansion of the bladder. The magnitude of renal pelvic dilation may predict the degree of obstruction but does not correlate with renal function.

64 During a robotic sacrocolpopexy, a patient has tachycardia and hypercarbia. In addition to increasing respiratory rate, the next step is:
A. increase positive end expiratory pressure (PEEP).
B. I.V. fluid bolus.
C. check arterial blood gas.
D. decrease the insufflation pressure.
E. take the patient out of steep Trendelenburg.
ANSWER=D
The most frequently selected insufflation pressure for laparoscopy is 15 mmHg. If insufflation pressures of > 20 mmHg develop, three major systems are affected: 1) a decreased venous return and cardiac output occurs results in tachycardia, 2) an increase in pressure on the renal parenchyma results in a decrease in GFR and oliguria, 3) expanded abdominal pressure results in a decrease in diaphragmatic movement, decreased pulmonary insufflation, hypercarbia, and respiratory acidosis. When faced with the classic triad of tachycardia, oliguria and hypercarbia, the next step is to increase the respiratory rate and decrease the insufflation pressure. Although increasing the PEEP is advisable in patients with lung disease, this would not address the multiple systemic problems seen with elevated intraabdominal pressure. The steep Trendelenburg can cause a decrease in heart rate and systemic vascular resistance and a rise in mean arterial pressure and cardiac output. I.V. fluid bolus would not alter the physiologic condition and is not necessary to address the mild oliguria associated with pneumoperitoneum.

65 A 27-year-old man on an alpha-blocker for hypertension undergoing an infertility evaluation has a normal physical examination. Two semen analyses demonstrate volumes of less than 1 ml, pH of 7.4, normal viscosity, and sperm counts in the range of 60 million/ml with 80% motility and 8% normal forms. The following test provides the most useful information:
A. TRUS.
B. postejaculatory urinalysis.
C. serum testosterone.
D. serum FSH and LH.
E. serum prolactin.
ANSWER=B
The key abnormalities in this evaluation are the two semen analyses demonstrating all normal parameters except for a markedly decreased volume. The history of hypertension is incomplete and should include medications since many anti-hypertensives interfere with bladder neck closure and ejaculation. TRUS is not required because the semen pH is normal implying that ejaculatory duct obstruction is unlikely. The next most useful test would be examination of a post-ejaculate urine specimen.

66 A 15-year-old girl involved in a car versus pedestrian accident sustains a fracture of her left ischiopubic ramus with diastasis of the sacroiliac joint. Urinalysis has 5-10 RBC's and there is blood at the introitus. CT scan with contrast shows no renal fracture. The next step is:
A. observation.
B. DRE.
C. VCUG.
D. flexible cystoscopy.
E. cystoscopy and vaginoscopy.
ANSWER=E
The incidence of urethral injuries following a pelvic facture are directly related to the number pubic rami-factures, the degree of the separation of the pubic symphysis, and the presence of diastasis of the sacroiliac joint. When any of these injuries are found to occur in conjunction with blood at the penile meatus or blood at the vaginal introitus, a urethral injury must be ruled-out. While a retrograde urethrogram is the preferred modality to assess urethral integrity in males, cystoscopy and vaginoscopy under general anesthesia is preferred in pre- and post-adolescent females. It is important to note that in this patient population concurrent rectal injuries must also be ruled-out. DRE once the mainstay to rule out a concurrent rectal injury has been found to have a large false negative rate and currently rectal endoscopy or other imaging modalities must also concurrently be performed to rule out a concomitant rectal injury. Husmann DA: Pediatric genitourinary

67 A morbidly obese woman has crepitus along the abdomen and thorax and mild hypercarbia four hours into a laparoscopic radical nephrectomy. The next step is:
A. confirm trocars are in intraperitoneal location.
B. relocate gas insufflation to a different trocar.
C. increased respiratory rate.
D. increase tidal volume.
E. convert to open nephrectomy.
ANSWER=A
Subcutaneous emphysema can develop intraoperatively from CO2 gas leakage around trocars and diffusion into the subcutaneous space. This is more common in cases where the trocar sites are made too large, lengthy cases, or use of high intra-abdominal insufflation pressures. Trocars should be directed toward the organ of interest so as to minimize forceful redirection of the trocar and instruments, resulting in enlargement of the trocar tract and gas leakage into the subcutaneous tissues. In obese patients, trocar length limits may result in the trocar pulling back into the subcutaneous tissues and causing gas leakage. In such cases, an extra-long trocar may be necessary. In assessing this patient's particular case, the first step is to ensure that all trocars are properly positioned within the intraperitoneal cavity, and that widening of the tracts has not occurred. Simply relocating the gas insufflation without ensuring proper trocar placement would not correct the problem. Although adjusting ventilator settings may help compensate for the hypercarbia, the initial problem has not been solved. Lastly, converting to an open operation just because of subcutaneous emphysema would be too extreme a measure.

68 The treatment of idiopathic oligospermia with human chorionic gonadotropin is most likely to result in:
A. elevation of serum testosterone.
B. increased sperm concentration.
C. improved sperm motility.
D. increased pregnancy rate.
E. increased seminal volume.
ANSWER=A
While studies of empirical treatment of idiopathic oligospermia have shown improvement in sperm parameters, this occurs in a minority of men. Oral agents such as clomiphene citrate, as well as gonadotropins, have been used. Treatment with human chorionic gonadotropin does not generally achieve consistent improvement in sperm concentration, sperm motility, or pregnancy rate. Seminal volume does not increase in men with normal testosterone levels. Testosterone levels do rise because of the stimulation of testosterone production by Leydig cells. Some testosterone is converted to estradiol by the enzyme aromatase.

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69 A six-month-old boy has a non-palpable left testis. The contralateral testis is descended and normal in size. The next step is:
A. inguinal scrotal ultrasound.
B. abdominal CT scan.
C. left scrotal exploration.
D. diagnostic laparoscopy.
E. hCG treatment.
ANSWER=D
The descended testis is not hypertrophied (> 2 cm in length in a prepubertal boy) implying that the undescended testis is present and located in an abdominal position. None of the imaging studies would eliminate the need for diagnostic laparoscopy to exclude an intra-abdominal testicle. Scrotal exploration would be a reasonable option only if the descended testis was hypertrophied, as approximately 90-95% of the cases will have documented gonadal vessels in the inguinal canal. However, it should be noted that hypertrophy of the contralateral testis, if present, is neither perfectly sensitive nor specific for the presence of vanishing testis. Therefore, surgical exploration is indicated in all children with a nonpalpable testis, regardless of the size of the contralateral testis. In 5% of cases with unilateral hypertrophy, the testicle will have torsed intra-abdominally, and laparoscopy or retroperitoneal dissection will be necessary to visualize the blind-ending vessels proximal to the internal ring. There is no role for hormonal therapy to induce testicular descent due to its low efficacy.

70 While starting a planned placement of an artificial urinary sphincter (AUS), an 8 Fr bladder neck contracture is noted cystoscopically after a 14 Fr catheter is unable to be placed. The next step is:
A. place an 8 Fr urethral catheter and proceed with AUS placement.
B. dilate the bladder neck contracture, place a larger catheter and proceed with AUS placement.
C. transurethrally resect the bladder neck, place a larger catheter and proceed with AUS placement.
D. transurethrally resect the bladder neck, inject the resected bladder neck area with steroids and proceed with AUS placement.
E. transurethrally resect the bladder neck and proceed with AUS placement three months later once assured the bladder neck remains open.
ANSWER=E
Any issues of obstruction should be resolved before proceeding with AUS placement. Opening the bladder neck contracture with either dilation or resection and simultaneous AUS placement would not be recommended. It is unknown if the bladder neck contracture will remain open with either therapy, and this issue needs to be resolved prior to AUS placement, as treatment of a bladder neck contracture with an AUS in place can be very challenging. Steroid injection into the resection site is not indicated and would not alter the treatment strategy. This patient should have his bladder neck contracture opened and then undergo repeat cystoscopy in the office. If the bladder neck remains patent over time (at least three months) then AUS placement can proceed. Simultaneous sphincter placement in the setting of a less severe bladder neck contracture has been advocated. Wessells H, Peterson AC: Surgical procedures for sphincteric incontinence in the male: The artificial genitourinary sphincter and perineal sling procedures, .

71 The primary advantage of ultrasound for SWL stone localization is:
A. capability for continuous real-time monitoring.
B. short learning curve.
C. multifunctional use for diagnosis and endourological treatment.
D. ability to identify ureteral calculi.
E. efficacy in clinical situations with multiple calculi.
ANSWER=A
The major advantages of fluoroscopy for stone location are: a short learning curve, a wide range of indications for in situ treatment, and multifunctional use of x-ray. The localizing problems for fluoroscopy consist chiefly of stones close to the vertebral column and radiolucent calculi. The advantages of ultrasound for stone location are: low purchase costs and maintenance, no x-ray exposures, the possibility of continuous real- time monitoring, and location of radiolucent calculi. Calculi in the middle ureter are almost impossible to localize with ultrasound. Multiple calculi may be problematic for ultrasonic stone localization.

72 Regarding family members of a child with VUR, the 2012 AUA Reflux Guidelines recommend VCUG screening in:
A. all siblings.
B. all offspring.
C. any non-toilet-trained sibling.
D. any sibling with prenatal hydroureteronephrosis.
E. any sibling with prenatal bilateral pelviectasis.
ANSWER=D
VCUG is recommended if there is evidence of renal scarring on ultrasound or if there is a history of UTI in the sibling who has not been tested. VCUG is recommended for children with high-grade (Society of Fetal Urology grade 3 and 4) hydronephrosis (not just pelviectasis), hydroureter or an abnormal bladder on ultrasound (late term prenatal or postnatal), or who develop a UTI on observation. VCUG is not routinely recommended for all siblings of a child with VUR, or for the offspring of a former patient with VUR.

73 A 24-year-old man with a T4 complete spinal cord injury who manages his bladder with CIC every six hours complains of increased lower extremity spasms during the past week. Urine culture reveals 100 cfu/ml E. coli. He denies urinary urgency or incontinence. The next step is:
A. observation.
B. antibiotics.
C. antibiotics if pyuria present.
D. baclofen.
E. urodynamics.
ANSWER=B
UTI in patients with spinal cord injury on CIC is commonly seen but can be a challenge to diagnose. Almost all urine collections will show bacteriuria, and pyuria may occur solely due to the irritative effects of catheterizations, and may not always be related to the presence of infection. The usual symptoms of UTI such as urinary frequency, urgency, and dysuria will not be noted in patients with a complete neurologic injury who have no bladder sensation. Typical

UTI symptoms in a patient with a spinal cord injury may include urinary incontinence between catheterizations, increased spasticity (as seen in this patient), malaise, lethargy, persistent cloudy or malodorous urine, and discomfort at the level of the flank, back, or abdomen. Bacteria levels are problematic to interpret and are classically only treated if they are greater than or equal to 100 cfu/ml and the patient is symptomatic. Due to the symptomatic complaint of increased spasticity and positive urine culture, this patient should be given antibiotics. If the spasticity is not resolved after treatment, the patient should be carefully examined for any physical injury below the level of his lesion, such as obstipation, decubitus ulcer, ingrown toe nail, developing syrinx, etc. Baclofen is a commonly used treatment for spasticity in spinal cord injury (SCI) patients, and should be considered for use if the spasticity is not resolved after treatment of the UTI, and additional patient evaluation fails to reveal an underlying cause. Elevated storage pressures do place a patient at increased risk of symptomatic UTI, and urodynamics should be considered if this patient continues to experience recurrent symptomatic infections.

74 A 22-year-old woman with recurrent febrile E. coli UTIs wants to become pregnant. CT scan shows a normal left kidney and an atrophic, scarred right kidney with less than 5% function on a DMSA scan. VCUG shows no reflux. The next step is:
A. indium-labeled WBC scan.
B. preventive antimicrobial therapy.
C. bilateral ureteral catheterization with cultures.
D. fluorescent bacterial antibody testing.
E. right nephrectomy.
ANSWER=C
It must be decided whether this woman has recurrent E. coli infections or a persistent source of infection. One of the causes of surgically correctable bacterial persistence in the urinary tract is a unilateral infected atrophic kidney. To prove that this woman has bacterial persistence, however, upper tract bacterial localization cultures with bilateral ureteral catheterization need to be performed before nephrectomy is considered to treat her infections. If the kidney is not infected, these infections are the result of frequent E. coli reinfections, in which case a right nephrectomy would not be helpful in treating her. An indium-labeled WBC scan may not be helpful if the kidney is inflamed but not the source of recurrent E. coli infections.

75 A three-year-old girl has a right 9 cm lower pole renal mass and a left 2 cm upper pole renal mass without lymphadenopathy on CT scan. The next step is:
A. percutaneous renal mass biopsies.
B. open renal mass biopsies.
C. neoadjuvant chemotherapy and repeat CT scan at six weeks.
D. right nephrectomy and left partial nephrectomy.
E. bilateral partial nephrectomies.
ANSWER=C
Neoadjuvant chemotherapy is indicated: in children at risk for tumor recurrence (syndromes such as Beckwith-Wiedemann), in very large tumors or with tumor in the IVC above the hepatic veins making primary resection difficult, and in synchronous bilateral tumors. In bilateral tumors, nephron-sparing surgery is the goal, and repeat CT scan is indicated after chemotherapy to assess tumor shrinkage for timing of partial nephrectomies. Percutaneous or open renal mass biopsy will upstage the tumor and are not required for initiation of therapy.

76 A 60-year-old man being evaluated for renal transplantation has urinary frequency and decreased force of stream. He is on tamsulosin. DRE reveals a benign 30 gm prostate. Voiding diary reveals voided volumes of 50-75 ml/void and a total voided volume of 400 ml/24 hours. Maximum flow rate is 8 ml/second and Pdet Qmax is 80 cm H2O on pressure flow urodynamics. Postvoid residual urine is 0 ml. The next step is:
A. finasteride.
B. onabotulinumtoxinA.
C. TUIP.
D. TURP.
E. evaluate bladder symptoms after transplant.
ANSWER=E
Clinical studies reveal that that up to half of the patients with the combination of LUTS and oliguria will have significantly improved symptoms after transplantation and the resolution of the oliguria, thereby rendering surgical treatment unnecessary. It is noteworthy that oliguric men undergoing surgical intervention for BPH have a significantly higher risk of developing either a bladder neck contracture, a prostatic fossa obliteration, or a urethral stricture if surgical treatment is performed before transplantation. To avoid these complications, it is recommended that treatment of bladder outlet obstruction in patients with oliguria be delayed until after the transplant is performed. If the physician elects to perform a TURP or TUIP in an oliguric or anuric patient the establishment of "normal voiding" cycles for a period of six weeks post- surgery has been shown to decrease the postoperative complications of urethral obstruction. To allow for "normal voiding", either a SP tube is placed or CIC is done, and water or saline is instilled into the bladder four to five times daily with the patient instructed to void per urethra. These maneuvers prevent the "dry urethra" and aid in prevention of bladder neck or obliterative urethral strictures. Finasteride would be indicated for a patient with a larger prostate with an elevation in residual urine. OnabotulinumtoxinA would be indicated for detrusor overactivity unresponsive to medical therapy with anticholinergics. Treatment of this patient now with onabotulinumtoxinA may improve his bladder capacity, but could lead to urinary retention and the need for CIC.

77 The following correlates with improved patency rates after vasectomy reversal:
A. absence of sperm granuloma.
B. increased diameter of proximal vas.
C. multi-layered anastomosis.
D. length of the proximal vas.
E. increase in cross-sectional tubular area of the testis.
ANSWER=D
Improved patency and pregnancy after vasectomy reversal are correlated with a short time interval between vasectomy and reversal. It has been demonstrated that a proximal
vas segment in excess of 2.7 cm predicts the presence of vasal fluid with whole sperm. It is generally believed that the presence of a granuloma and a smaller luminal diameter are favorable, as pressure below the level of the vasectomy may be less. Testicular specimens obtained after vasectomy reveal increased thickness of the seminiferous tubules, reduction in the number of Sertoli cells and spermatids, and an increase in the cross-sectional tubular area. The presence of interstitial fibrosis has an adverse effect on post-vasovasostomy fertility. The type of microscopic anastomosis (multi or one-layer) does not correlate with patency rates.

78 A three-year-old boy has a 1 cm area of erythema and swelling of the foreskin for 24 hours. He last voided with severe dysuria six hours ago. He has no fever. The next step is:
A. observation.
B. topical antibiotic.
C. topical testosterone.
D. oral antifungal.
E. dorsal preputial slit.
ANSWER=B
This child has balanoposthitis. In mild cases, simple removal of irritating agent (such as soaps and detergents) can lead to improvement, but this child has had significant symptoms for over 24 hours and is having difficulty voiding. The correct next step is topical antibiotic rather than observation. If the topical antibiotic is ineffective, then topical or oral antifungal agents may be tried next. Unlike with balanitis xerotica obliterans (BXO), topical testosterone is inappropriate. In cases of severe swelling, topical corticosteroid may be tried. Performance of a dorsal slit is too aggressive for this benign condition.

79 A 62-year-old man with a history of metastatic prostate cancer and erectile dysfunction develops priapism for the past five days. He denies using any erectogenic medications and complains of persistent penile pain. Corporal blood gas reveals pH 7.35, pCO2 50 mmHg, and pO2 40 mmHg. The next step is:
A. oral terbutaline.
B. sympathomimetic cavernosal injection.
C. proximal bulbo-cavernosal shunt.
D. selective embolization.
E. corporal biopsy.
ANSWER=E

It is unlikely that a man with ED not using any erectogenic medications will develop ischemic priapism. Moreover, his ABG does not suggest ischemic, nor non-ischemic priapism. Cavernosal blood gas in men with ischemic priapism typically has a PO2 of < 30 mmHg, a PCO2 of > 60 mmHg, and a pH < 7.25. Cavernous blood gases in men with nonischemic priapism are similar to the blood gases of arterial blood. Normal flaccid penis cavernous blood gas levels are approximately equal to those in normal mixed venous blood. The findings in this patient, blood gas values equal to normal mixed venous blood are most consistent with priapism secondary to metastatic prostate cancer to the corpora and corpora biopsy is indicated. In view of the blood gas finding the use of oral terbutaline, sympathomimetic cavernosal injections or shunting would be inappropriate.

80 Hypertension in Cushing's syndrome is primarily related to:
A. elevated plasma catecholamines.
B. elevated plasma aldosterone.
C. retention of water and salt.
D. ACTH-stimulated renin.
E. elevated angiotensin II.
ANSWER=C
Cushing's syndrome implies glucocorticoid excess, while Cushing's disease is glucocorticoid excess specifically due to a pituitary adenoma. Approximately 80% of patients with Cushing's syndrome have hypertension at the time of presentation. Glucocorticoids have weak mineralocorticoid effects resulting in retention of salt and water. With excessive glucocorticoid production these weak mineralocorticoid effects can cause hypertension. Plasma catecholamines are typically not elevated.

81 Monitoring for adenocarcinoma of the bladder after a sigmoid bladder augmentation cystoplasty is best performed by yearly:
A. urine cytology.
B. urine fluorescence in-situ hybridization (FISH) analysis.
C. serum carcinoembryonic antigen (CEA) level.
D. renal and bladder ultrasound.
E. cystoscopy.
ANSWER=D
Patients who undergo bladder augmentation with bowel should be counseled on the possible long-term risk of carcinoma formation, renal and bladder calculi and metabolic abnormalities. The earliest report of tumor formation is four years after bladder augmentation with bowel. Yearly cystoscopic surveillance had been recommended in the past, though the timing of when to start the surveillance was not well-defined. Recent studies have shown that routine yearly endoscopy is not indicated due to the low incidence of malignancy following a bladder augmentation (approximately 1.5-2.5% of patients per decade), lack of proven benefit, and high cost. In the absence of other risk factors, the current recommendation is for annual visits with renal and bladder ultrasound (rule-out stones or the development of hydronephrosis secondary to noncompliance with CIC), electrolytes (rule out metabolic abnormalities), creatinine, serum B12 (rule-out nutritional deficiencies), and urinalysis (assess for hematuria). Endoscopy is reserved for individuals with a past medical history of gross hematuria, microscopic hematuria (> 50 RBC/hpf), new onset of hydronephrosis (rule-out tumor obstructing the ureteral orifice), bladder calculi, chronic bladder/perineal pain or a history of four or more symptomatic UTI per year. Using this screening criteria, > 90% of tumors arising in a bladder augment can be discovered without the use of annual endoscopy.

82 A 60-year-old man with LUTS and an AUA Symptom Score of 18 has a PVR of 200 ml. This residual volume is:
A. associated with recurrent pyelonephritis.
B. an indication for surgical therapy.
C. of limited clinical utility.
D. highly correlated with urinary symptoms.
E. predictive of outcome after surgery.
ANSWER=C
Residual urine volumes have a large intraindividual variability, are not associated with renal or bladder damage, are not well-correlated with symptoms, and are not predictive of surgical outcome. In addition, an elevated PVR has not been associated with recurrent pyelonephritis. Therefore, the test is of limited clinical value and, in fact, the AUA Guidelines classify the test as optional in the initial diagnostic evaluation and subsequent assessment of men with bothersome LUTS.

83 A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on DRE. Serum PSA is 3.0 ng/ml. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The next step is:
A. observation.
B. repeat prostate biopsies in three months.
C. cycloserine for six months.
D. isoniazid for six months.
E. isoniazid and rifampin for six months.
ANSWER=A
Prostatic granulomas are recognized with increasing frequency in men following intravesical BCG therapy. Although long-term outcome is uncertain, the granulomas are generally asymptomatic and no therapy is recommended. This patient had a prior normal digital rectal exam of the prostate and his serum PSA is normal. Thus, it is unlikely he has prostate cancer and further biopsies are no more indicated in him than in any other age matched male patient.

84 A five-year-old girl with a horseshoe kidney has moderate left hydronephrosis and a 2.1 cm renal pelvis stone. The next step is:
A. ureteral stent.
B. SWL.
C. ureteroscopic laser lithotripsy.
D. PCNL via lower pole access.
E. laparoscopic pyelolithotomy.
ANSWER=E
The horseshoe kidney involves anteriorly oriented renal pelves and a low-lying kidney mass with the isthmus sitting just below the inferior mesenteric artery takeoff from the aorta. This makes a transperitoneal, laparoscopic approach to this large stone very attractive. With moderate hydronephrosis, a simple transmesenteric exposure of the renal pelvis followed by pyelotomy can allow intact removal of the large stone. Simple lap suturing can close the pyelotomy incision. The option of percutaneous lithotripsy is appropriate to consider; however, access should be through the upper pole because of calyceal anatomy. The lower pole of a horseshoe kidney will be too medial and anterior for optimal access. Ureteroscopic treatment using a holmium laser is not a good option with a stone of this size as the duration of procedure and failure rate will both be high. ESWL will also carry a high failure rate due to stone size. A double J stent does not offer an advantage in treating the stone in this scenario.

85 A 54-year-old woman undergoes intradetrusor injection of 100 units of onabotulinumtoxinA for symptoms of urgency, frequency, and urgency urinary incontinence. Two weeks later, she complains of worsening frequency, urgency, and urinary incontinence. The next step is urinalysis and:
A. PVR.
B. urodynamics.
C. mirabegron.
D. immediate reinjection of an additional 100 units of onabotulinumtoxinA.
E. reinject an additional 100 units of onabotulinumtoxinA in three months.
ANSWER=A
This patient is likely experiencing worsening of symptoms due to incomplete bladder emptying. Approximately 5% of patients with idiopathic overactive bladder will have issues of incomplete bladder emptying/urinary retention requiring CIC after injection of 100 units of onabotulinumtoxinA. Determination of her PVR would allow for proper evaluation for incomplete bladder emptying and guide the initiation of CIC as needed. Mirabegron is a beta-3-adrenergic receptor agonist and is indicated for OAB; this would only be considered once the possibility of incomplete bladder emptying has been ruled- out. Urodynamics is unnecessary to rule out urinary retention. However, if this patient is emptying adequately, urodynamics may then be considered for diagnostic purposes. If a patient requires reinjection, this should be done at least three months after the initial injection. In addition, studies suggest that the 100 unit dose is adequate for OAB, and a higher dose is not beneficial and maybe associated with an increased incidence of urinary retention.

86 A 21-year-old man had a right inguinal orchiectomy for a clinical Stage I mixed germ cell tumor. He was observed and seven months later, a 4 cm mass is seen on the abdominal CT scan in the interaorto-caval region. The chest x-ray, beta-hCG, and AFP are normal. The next step is:
A. retroperitoneal XRT.
B. percutaneous biopsy of retroperitoneal mass.
C. cisplatin-based chemotherapy.
D. right modified template RPLND.
E. full bilateral RPLND.
ANSWER=C
Chemotherapy-naive relapses occur in men with clinical stage (CS) I NSGCT managed with either surveillance or RPLND, and in the men with CS IIA-B NSGCT treated with RPLND alone. In general these patients are treated with induction chemotherapy, with the specific regimen and duration of therapy determined by risk, and cure rates exceed95%. This patient has an abdominal relapse after observation. Correct management is three cycles of BEP for disseminated germ cell tumor in good risk patients. Biopsy of the mass could miss elements of residual cancer and should not be performed. XRT is not indicated for mixed germ cell tumors of the testis. Retroperitoneal lymphadenectomy is usually not performed prior to chemotherapy for masses > 3 cm on CT scan, avoiding double therapy in these patients.

87 DDAVP causes absorption of water by exerting its effects on:
A. juxtaglomerular apparatus.
B. distal tubule.
C. macula densa.
D. loop of Henle.
E. collecting ducts.
ANSWER=E
DDAVP, similar to ADH, exerts its effects on the collecting ducts to absorb water. DDAVP is often used for the treatment of nocturnal enuresis in children and polynocturia in adults. Side effects, although rare, do exist and may result in hyponatremia, headaches, and on extremely rare occasions, hyponatremic-induced mental confusion and seizures. If this medication is chronically administered, the urologist should consider obtaining intermittent serum electrolyte evaluations to observe for the development of hyponatremia. DDAVP should not be used to treat nocturnal polyuria in the adult with a history of CHF or renal insufficiency.

88 An 85-year-old man has bothersome LUTS. He underwent TURP 12 years ago. Urinalysis and urine cytology are negative. The most important test before considering repeat TURP is:
A. serum creatinine.
B. residual urine.
C. uroflowmetry.
D. cystoscopy.
E. pressure-flow study.
ANSWER=E
Persistent or recurrent LUTS may occur after TURP. Since < 20% of these men have any evidence of recurrent or persistent bladder outlet obstruction, assessment with pressure-flow studies are particularly useful to make determinations regarding the appropriateness of further surgical intervention. Many of these patients' symptoms are due to poor bladder contractility or detrusor overactivity. Uroflowmetry alone may be used for screening purposes, although it may be misinterpreted in the presence of high-flow, high-pressure voiding. Cystoscopy will rule-out a stricture or bladder neck contracture but the presence of visually obstructing prostatic tissue does not correlatewith bladder outlet obstruction. Neither residual urine nor creatinine (even if abnormal) sheds light on the etiology of the emptying disorder.

89 A 23-year-old man is referred for treatment after a left trans-scrotal orchiectomy. Pathology shows an embryonal cell carcinoma mixed with elements of seminoma. AFP, beta-hCG, and chest x-ray are normal. No inguinal lymph nodes are palpable. In addition to excision of the left spermatic cord, treatment should include:
A. hemiscrotectomy.
B. left superficial inguinal lymph node dissection.
C. biopsy of left sentinel inguinal node.
D. radiation of left inguinal nodes.
E. observation of inguinal nodes.
ANSWER=E
It was previously believed that scrotal surgery markedly increased the risk of local recurrence and inguinal node metastases. Further evidence now suggests that this risk has been overestimated and a formal hemiscrotectomy or prophylactic inguinal lymph node dissection is rarely indicated. A meta-analysis of all evaluable reported series (1182 total cases, 206 with scrotal violation) found that the risk of local recurrence increased from 0.4% to 2.9% with scrotal violation, but there was no difference in the distant recurrence or survival rates. In patients with low-stage NSGCT, the scrotal scar should be widely excised with the spermatic cord remnant at the time of RPLND. The inguinal nodes should be preserved.

90 A six-month-old boy is scheduled for elective hypospadias repair. Instructions given to his parents regarding his NPO pre-op fluid status include:
A. NPO after midnight.
B. clear fluids until one hour prior to anesthesia.
C. breast milk until four hours prior to anesthesia.
D. formula until four hours prior to anesthesia.
E. any fluids until four hours prior to anesthesia.
ANSWER=C
According to the American Society of Anesthesia guidelines, NPO after midnight is no longer advisable or safe for children. Recommendations for fasting prior to anesthesia include: clear liquids - 2 hours, breast milk - 4 hours, formula or solid food - 6 hours, and fatty foods - 8 hours.

91 The best time to perform urodynamics on a patient after a complete T4 spinal cord injury is:
A. during the initial in-patient rehabilitation stay.
B. at the initial sign of urinary incontinence.
C. after the patient has learned to perform CIC.
D. three months after the initial injury.
E. after the return of deep tendon reflexes.
ANSWER=E
Spinal shock is defined as the loss of motor, sensory, reflex, and autonomic neurologic function below the level of spinal cord injury. It is a temporary physiologic disorganization of spinal cord that classically starts within one hour after the neurologic injury. Resolution of spinal cord shock classically begins with the initial return of the bulbocavernosus reflex followed by the eventual restoration of the deep tendon reflexes (DTR) below the level of spinal cord injury. Resolution of spinal cord shock may be defined by either the recurrence of the bulbocavernous reflex or by return of the DTR, the latter of which usually occurs at four to six weeks post injury. Return of the DTR, will be followed by a progressive increase in muscle spasticity and the development of detrusor over activity. The severity of muscle spasticity and/or detrusor dysfunction increases during the first year post injury due to a combination of neuronal sprouting, done by the neurons in an attempt to make neural connections below the spinal cord injury, combined with the up regulation of neural receptors within the target organs. The full extent of the neurogenic bladder dysfunction may take one to two years to become completely manifested. Significant surgical intervention, for example, formation of continent catheterizable stoma or determining if the patient would need a bladder augmentation should therefore be delayed for at least one year following injury to allow the severity of the neurourologic injury to be revealed. The timing for the initial urodynamic study should not arbitrarily be based on the time since the injury, but rather on the clinical findings of the patient. Specifically, the return of DTR associated with the strength of these reflexes following minimal stimulation should dictate when to perform the initial urodynamic evaluation. Since the initial in-patient rehabilitation stay is usually no more than two to three weeks, a study at this time only reflect the finding of detrusor underactivity due to the manifestations of spinal cord shock. The initial findings of urinary incontinence are often a consequence of a UTI due to the initiation of CIC and are not necessarily an indication to perform the initial urodynamic evaluation. On the other hand, new onset of urinary incontinence in a patient with neurogenic bladder who has been stable on their bladder management for greater than six months and is not actively infected would be a reason to evaluate the patient with urodynamic studies.

92 A 35-year-old man has persistent retroperitoneal lymphadenopathy after cisplatin-based chemotherapy for NSGCT. The parameter most predictive of finding only fibrosis in the retroperitoneum is:
A. normalization of serum hCG.
B. 50% reduction in size of the mass on CT scan.
C. pure embryonal cell carcinoma in the primary tumor.
D. normalization of serum alpha-fetoprotein.
E. teratoma in the primary tumor.
ANSWER=C
Patients with a NSGCT who have a > 90% reduction in the size of the retroperitoneal mass with chemotherapy and have no teratomatous elements in their tumor (such as this patient who had a pure embryonal tumor) uncommonly have either viable cancer or teratoma in the residual mass at the time of retroperitoneal lymph node resection. In an early study, Donohue and colleagues (1987) reported that none of 15 patients without teratoma in the primary tumor and who achieved a 90% or greater reduction in the size of the residual mass with chemotherapy had any evidence of viable malignancy or teratoma at postchemotherapy surgery. In contrast, seven of nine patients (78%) with teratoma in the primary tumor experiencing a similar reduction in the size of the metastasis with chemotherapy had evidence of viable malignancy and/or teratoma. Predictors of necrosis in post-chemotherapy surgery specimens include the absence of teratoma in the primary tumor, significant percentage reduction (e.g. 90%) in the retroperitoneal mass with chemotherapy, and the size of the residual mass. However, despite statistical modeling using these and other factors, a consistent false-negative rate for necrosis (of up to 20% in some studies) has been reported, largely due to the presence of teratoma. Thus, the presence of necrosis only in the retroperitoneum cannot be predicted with sufficient accuracy to safely obviate the need for surgery in patients with residual masses. Normalization of the serum markers does not predict the presence of fibrosis.

93 A six-year-old boy with the history of a neonatally ablated PUV has worsening bilateral hydroureteronephrosis. He is incontinent at night and occasionally wet during the day. A 24-hour urine collection shows a urine volume of two liters. Videourodynamics shows no detrusor overactivity, no residual valves, and no VUR. Along with more frequent daytime voiding, the next step is:
A. decreased fluid intake.
B. dietary salt restriction.
C. DDAVP.
D. CIC.
E. continuous nighttime catheterization.
ANSWER=E
Patients with a concentrating defect due to obstruction such as PUV may present with worsening incontinence along with upper urinary tract deterioration due to excessive urine production. The urine volume will not decrease significantly with either salt or water restriction. Furthermore, water restriction is dangerous and often counterproductive, as it may lead to dehydration and worsening renal function. Patients with a renal concentrating defect typically do not respond to DDAVP. Unless there is evidence of myogenic failure and incomplete bladder emptying, daytime CIC to further eliminate post void residual is unlikely to help this patient. It has been suggested that continuous nighttime drainage can improve the fluid dynamics, thus restoring the upper urinary tract (decreasing bilateral hydroureteronephrosis), as well as improving daytime urinary incontinence.

94 The main disadvantage of bladder autoaugmentation is:
A. increased operative time.
B. decreased bladder compliance.
C. limited increase in bladder capacity.
D. increased risk of perforation.
E. increased complication rate of subsequent enterocystoplasty.
ANSWER=C
Preoperative bladder volume may be the most important predictor of success. If a significant increase in bladder volume capacity is needed, autoaugmentation is not likely to be as useful as other reconstructive techniques. Autoaugmentation usually increases bladder compliance, and operative time is shorter than for bowel augments without a high risk of perforation. Studies have shown no increased complication rate from subsequent enterocystoplasty, if needed.

95 A 60-year-old man with squamous cell carcinoma of the penis invading the right corpus cavernosum undergoes partial penectomy. After six weeks of cephalexin, a 3.5 cm right inguinal lymph node has decreased in size to 2.0 cm. Pelvic CT scan is normal. The next step is: A. reevaluation in three months.
B. needle aspiration of the suspicious node.
C. sentinel node biopsy.
D. bilateral inguinal node dissection.
E. right inguinal node dissection.
ANSWER=D
The patient has a Stage II penile cancer with invasion of the corpora that is associated with a much higher incidence of positive lymph nodes. Although the lymph node has decreased in size, it is still palpable after six weeks and deserves excision. Since this patient is at high risk for nodal disease, neither a negative needle aspiration nor a negative sentinel node biopsy should dissuade one from lymphadenectomy. Among patients found to have unilateral positive groin nodes, a bilateral lymphadenectomy is indicated due to the high rate of bilateral disease. By comparison, patients who present with unilateral adenopathy beyond one year are treated with ipsilateral lymphadenectomy.

96 A 25-year-old woman has a chronic history of intermittent urinary stream and a lower abdominal discomfort without significant urinary urgency. Physical exam is normal and PVR is 1 liter. MRI scan of the brain and spine is normal, as is cystoscopy. Pressure flow analysis shows an active EMG during voiding. She has failed treatment with biofeedback and prefers not to do CIC. The next step is:
A. vaginal estrogen therapy.
B. alpha-blocker therapy.
C. onabotulinumtoxinA of the sphincter.
D. sacral neuromodulation.
E. sphincterotomy.
ANSWER=D
Fowler's syndrome was first described in 1985. It is a cause of urinary retention in young women that is associated with abnormally increased EMG activity that results in impaired external sphincter relaxation. No neurologic or anatomic abnormality is associated with the condition, though it has been noted that women with Fowler's syndrome often have polycystic ovaries raising the possibility of a focal hormonal role. That said, neither hormone therapy nor onabotulinumtoxinA injection or alpha-blockade have been found to be successful therapies. Interestingly, however, the condition has been found by several groups to be highly responsive to neuromodulation.

97 During a penile plication for a 50 degree ventral penile curvature with palpable plaque, the deep dorsal vein is inadvertently transected. The next step is:
A. abort procedure and reattempt three months later.
B. ligate deep dorsal vein and continue with plication.
C. primary repair of deep dorsal vein and continue with plication.
D. anastomose deep dorsal vein to inferior epigastric vein and continue with plication.
E. convert to excision and grafting procedure.
ANSWER=B
The deep dorsal vein is occasionally ligated, dissected, and excised during a dorsal penile plication and the plication sutures are then placed in the venous bed. Thus, there is no need to salvage, convert, or abort the procedure. Excision and grafting is becoming less favorable due to the possible development of erectile dysfunction as a result of veno-occlusive dysfunction.

98 The drug with the most rapid onset of action in treating BCG sepsis is:
A. isoniazid.
B. rifampin.
C. ethambutol.
D. para-aminosalicylic acid.
E. cycloserine.
ANSWER=E
Cycloserine inhibits BCG growth within 24 hours. The other drugs listed require two to seven days to inhibit BCG growth. Because of

its relatively rapid action, cycloserine can be lifesaving in patients with BCG sepsis. Isoniazid, rifampin, and ethambutol all have slower onset of action and are less useful in the immediate management of life threatening BCG sepsis.

99 A nine-year-old girl who recently emigrated from Japan has recurrent right flank pain and urolithiasis with SWL being unsuccessful in the past. Renal ultrasound shows two right 8 mm renal calculi and moderate hydronephrosis. Urinalysis shows hexagonal-shaped crystals. The most likely cause of her urolithiasis is:
A. hypercalciuria.
B. hyperuricosuria.
C. cystinuria.
D. low urinary volume.
E. UPJ obstruction.
ANSWER=C
Cystine stones occur in patients homozygous for a complex autosomal recessive disorder of amino acid transport involving cystine, ornithine, lysine, and arginine. Onset is usually in the first or second decades. Cystine crystals are hexagonal and cystine stones are very dense making them difficult to treat by lithotripsy. Medical therapy, by increasing the solubility of cystine, is the mainstay of treatment. This disorder is noted to be of increased incidence in the Japanese population.

100 A 32-year-old man with a testosterone of 223 ng/dl has low energy, low libido and increased fatigue. He and his female partner are currently trying to conceive. Semen analysis demonstrates oligoasthenoteratospermia. Physical exam is normal. The next step is:
A. topical testosterone.
B. subcutaneous testosterone.
C. human chorionic gonadotropin.
D. scrotal ultrasound.
E. testis biopsy.
ANSWER=C
All exogenous testosterone products serve as a natural contraceptive, and thus, should not be given to men who are trying to achieve a pregnancy. Human chorionic gonadotropin is an LH analog and will increase endogenous testosterone, as well as potentially improve semen parameters. A scrotal ultrasound may be indicated if there was a suspicion for varicoceles although this patient's exam was normal. A testis biopsy would not be indicated in this situation.

101 The treatment most likely to cause painful gynecomastia is:
A. leuprolide.
B. leuprolide and bicalutamide.
C. ketoconazole.
D. bicalutamide.
E. finasteride.
ANSWER=D
Breast tenderness and enlargement during hormonal therapy for prostate cancer is due to an altered ratio of serum estrogens and testosterone. Leuprolide inhibits pituitary LH release so there is no rise in serum estrogens. Ketoconazole inhibits androgen and estrogen synthesis. Bicalutamide inhibits both end organ and central androgen receptors so that both LH and androgen levels increase with loss of negative feedback inhibition. Increased androgen is converted to estradiol, which can cause painful gynecomastia. Although finasteride can cause gynecomastia, the most likely cause is bicalutamide monotherapy.

102 A three-year-old boy is referred for bilateral undescended testes. On examination, both testes can be manipulated into a dependent scrotal position where they remain transiently upon fatigue of the cremasteric muscle. The next step is:
A. follow-up in one year.
B. LH and FSH measurement.
C. ultrasound and measurement of testis volume.
D. hCG injections.
E. bilateral scrotal orchiopexies.
ANSWER=A
This situation describes retractile testes. The cremasteric reflex is responsible for the superior retraction of the testes, and this reflex becomes more pronounced in many boys between two and eight years of age. The principal diagnostic characteristic is that the testis will remain without tension in a scrotal position after fatiguing (holding the testis manually in the scrotum for approximately 30 seconds and releasing the testis) until the reflex is once again stimulated. Some testes may retract into a higher position than others and require more persistent exam to evaluate and diagnose. Retractile testes have been shown to grow normally over time and be associated with normal paternity rates, thus requiring no immediate intervention. There is an associated phenomenon of secondary "ascent" in 2-4% of boys that may be associated with deterioration of germ cells. For this reason, it is appropriate to examine boys with retractile testes annually until either puberty arrives or the testis becomes non-retractile. hCG injection will consistently cause retractile testis to become intrascrotal and may be used in some cases where the diagnosis of retractile vs. undescended is uncertain. The testicles will, however, frequently retract once the hormonal stimulation is complete. In the case described, retractility is the clear diagnosis; therefore, neither further hormonal studies nor surgery are required.

103 The use of quick connectors when performing an artificial urinary sphincter (AUS) revision:
A. allows for the best, watertight connection.
B. minimizes the risk of device infection peri-operatively.
C. should not be used due to biofilm formation.
D. should not be used due to tubing size mismatch.
E. are equivalent to hand-tie connectors.
ANSWER=C
The use of quick connectors for AUS allows for a secure and watertight connection between the reservoir, cuff, and pump in a freshly placed device. However, studies show they are associated with suboptimal results when they are used for revision surgery. Presumably, the decrease in success is due to the formation of the biofilm on pre-existing devices. Studies suggest that the biofilm interferes with the tubing connection using the quick connectors, and thus leads to a suboptimal connection that is at greater risk of leaking. Hand-tie connectors should be used in all AUS revision procedures. If the entire device is removed and replaced, the quick connectors may be used. Wessells H, Peterson AC: Surgical procedures for sphincteric incontinence in the male: The artificial genitourinary sphincter and perineal sling procedures,

104 The manifestation of the von Hippel-Lindau syndrome that tends to be clustered only within a subset of affected families is:
A. RCC.
B. pheochromocytoma.
C. retinal angioma.
D. cerebellar hemangioblastoma.
E. epididymal papillary cystadenoma.
ANSWER=B
Penetrance for all of the manifestations of VHL is incomplete. Pheochromocytoma is found only in certain families with the VHL syndrome, primarily those with a missense mutation of the VHL gene. All of the other manifestations of VHL are found in most families with the syndrome. A careful family history and thorough review of preoperative CT scans for potential associated tumors is important in all patients with familial RCC. Pheochromocytomas in particular are a critical entity to recognize prior to any surgical intervention.

105 A four-month-old girl has a two-day history of fever. She is being followed for bilateral grade 2 hydronephrosis that was diagnosed antenatally. She is hemodynamically stable and no localizing signs are found on physical exam. A bagged urine specimen reveals 8-10 WBC/hpf and is nitrite positive. The next step is:
A. observation.
B. oral antibiotics.
C. I.V. antibiotics.
D. catheterized urine culture.
E. repeat ultrasound.
ANSWER=D
Plastic bag specimens are unreliable and unacceptable for diagnosis of UTI in high-risk populations and infants. Generally, if a UTI is suspected in a child who is not yet toilet trained, only a catheterized or needle-aspirated specimen is acceptable for diagnosisbecause bagged urinary specimens have an unacceptably high false-positive rate. Under special collection circumstances when the perineum is

cleaned well and the bag removed and processed promptly after voiding, a bagged specimen or even a diaper specimen that shows no growth is useful in eliminating bacteriuria as a diagnosis. In this infant, the urinalysis is equivocal and the risk of UTI is increased. Thus, a more definitive diagnosis with a catheterized urine specimen is needed prior to the initiation of any type of antibiotic therapy. She would likely be treated with oral antibiotic therapy as an outpatient (not observed or managed with I.V. antibiotic) only after a catheterized specimen has been obtained. Repeat ultrasound might be indicated if she has not responded to antibiotic therapy.

106 A 35-year-old man with spina bifida has urinary incontinence despite CIC every three hours. Urodynamics show detrusor overactivity and detrusor LPP of 60 cm H2O at 200 ml. Continence is achieved two weeks after intradetrusor injection of 200 units of onabotulinumtoxinA. The next step is:
A. increase time between catheterizations.
B. repeat onabotulinumtoxinA in six months.
C. repeat onabotulinumtoxinA when incontinence returns.
D. repeat onabotulinumtoxinA when urodynamic evidence of detrusor overactivity returns.
E. repeat urodynamics now.
ANSWER=E
OnabotulinumtoxinA is indicated for neurogenic detrusor overactivity. However, the concerning urodynamic finding that can be seen in many patients with spina bifida, including this one, is loss of compliance and an elevated detrusor LPP. Elevated detrusor LPP specifically refers to a loss of compliance. A detrusor LPP > 40 cm H2O places patients at a greater risk for subsequent upper urinary tract damage. While this patient is now continent, that does not mean that his detrusor storage pressure are in a safe range and he should, therefore, undergo a repeat urodynamic study. If the detrusor pressures are in a safe range at appropriate volumes, then increasing the interval between catheterizations can be considered, and he will likely require repeat injection in six to nine months when his symptoms return. If the detrusor pressures are not appropriately lowered with onabotulinumtoxinA, then bladder augmentation should be considered.

107 A 59-year-old man with a history of liver transplantation has a 1 cm raised, tender, penile lesion at the coronal sulcus dorsally. Incisional biopsy reveals Kaposi's sarcoma. The next step is: A. decrease immunosuppression.
B. topical 5-FU.
C. local excision.
D. CO2 laser ablation.
E. partial penectomy.
ANSWER=A
Kaposi's sarcoma is the 2nd most common malignancy of the penis (after squamous cell carcinoma) as a result of the prevalence of HIV infection. It also occurs in patients on immunosuppression for organ transplantation or other indications. In this setting, Kaposi's sarcoma often regresses with modification of the immunosuppressive regimen and this should be the initial approach. If the tumor fails to respond to these efforts, local excision, laser ablation, or radiation should be considered. Partial penectomy is not indicated for this tumor type. 5-FU is typically utilized in squamous cell carcinoma of the penis.

108 A newborn has endoscopic ablation of PUV. Three months later, he has a febrile UTI despite being maintained on prophylactic antibiotics. Follow-up ultrasound demonstrates persistent bilateral grade 4 hydroureteronephrosis. Creatinine is 1.0 mg/dl. The next step is:
A. MR urogram.
B. VCUG.
C. urodynamics.
D. change prophylactic antibiotics.
E. vesicostomy.
ANSWER=B
Following valve ablation, upper tract changes may take months or even years to resolve. However, in most cases, a trend towards improvement is noted in the first three to six months after valve ablation. When there are persistent upper tract changes, the first step is to perform a VCUG to determine if the valves are adequately ablated and whether or not reflux is present. Endoscopic valve ablation can be a technically challenging procedure in infants, and it is not always clear following initial surgery as to whether adequate ablation has occurred. In cases where the follow-up VCUG is unclear as to whether adequate valve ablation has occurred, repeat endoscopy is warranted. If there is no evidence of residual valves on the VCUG, then a careful assessment of bladder function is needed to determine if there is bladder dysfunction that is impairing upper tract drainage. Urodynamics can be performed to help tailor bladder management. In some patients CIC and/or pharmacotherapy may be needed. It is uncommon for upper tract dilation to be secondary to a true ureterovesical obstruction in this setting. Vesicostomy is usually reserved for patients in which initial valve resection cannot beperformed due to urethral anatomy or in cases where CIC is needed and cannot be performed reliably. Although the role of supravesical diversion (bilateral cutaneous ureterostomy) is controversial, it is generally limited to those patients that continue to do poorly despite bladder level drainage. Observation is warranted only after the possibility of residual valves and bladder dysfunction has been adequately assessed. Changing prophylactic antibiotics will not lead to clinical improvement if there is persistent valve obstruction. MR urogram would simply confirm upper tract dilation, but would not be helpful in evaluating for persistent bladder outlet obstruction and is contraindicated in the setting of compromised renal function.

109 According to the 2011 FDA notification, the use of vaginal mesh in pelvic organ prolapse surgery:
A. should never be done.
B. should only be done by physicians board-certified in Female Pelvic Medicine and Reconstructive Surgery.
C. has equivalent complication rates compared to mesh placed via an abdominal approach.
D. may result in rare complications if performed by an experienced vaginal surgeon.
E. may result in improved anatomic but equivalent symptomatic outcomes compared to transvaginal repairs without mesh.
ANSWER=E
The first communication from the FDA regarding vaginal mesh occurred in October 2008 and focused on the risk of complications of surgically placed vaginal mesh to treat both stress urinary incontinence and pelvic organ prolapse (POP). In July 2011, the FDA published an updated safety communication regarding the use of transvaginal mesh placement for POP. These communications do not state that these techniques should not be done. In addition, while the communication does recommend that each surgeon obtain specialized training for each technique they use and be aware of the risks involved with that technique, it does not state that these procedures should only be done by physicians who are board certified in the specialty of Female Pelvic Medicine and Reconstructive Surgery. The statement does note that serious complications associated with transvaginally placed mesh for POP are not rare. The FDA summary of the literature also notes that the use of mesh in transvaginal POP repair introduces possible risks that would not be seen in a repair without mesh, lower mesh-related complication rates are seen with transabdominal mesh use compared to transvaginal repairs and that mesh augmented transvaginal POP repairs may result in a better objective outcome that does not translate into a better symptomatic outcome. Update on serious complications associated with transvaginal placement of surgical mesh for pelvic organ prolapse: FDA Safety Communication.

110 During a radical cystectomy a small 3 mm papillary lesion is noted at the proximal margin of the transected ureter. Frozen section reveals a low grade Ta urothelial cell carcinoma. The next step is:
A. re-resect ureter until margin negative.
B. treat with BCG via diversion stent post-op.
C. flexible ureteropyeloscopy.
D. resect ureter and ileal ureter interposition.
E. nephroureterectomy.
ANSWER=C
The finding of a papillary lesion at the ureteral margin needs further evaluation to fully ascertain the extent of tumors in the system prior to planning the correct therapy. An on- the-table flexible ureteroscopy would thus be useful in detecting more proximal tumors which if present may necessitate more extensive surgery. If only CIS or dysplasia is present, intraoperative endoscopy is not indicated, because visual identification of CIS is unlikely.

Presuming that on-the-table ureteroscopy shows no additional tumors, you would then resect until negative margins are obtained. Nephroureterectomy and extensive ureteral resection would only be performed if the ureteroscopy demonstrated tumors at more proximal location. BCG is not indicated for a low grade ureteral tumor.

111 A ten-year-old boy has day and night urinary incontinence. Uroflow with simultaneous EMG reveals a maximum flow rate of 7 ml/sec with good relaxation of the pelvic musculature and an eight second lag between the onset of EMG quiescence and initiation of flow. VCUG shows a normal urethra with a PVR of 100 ml. The next step is:
A. double voiding.
B. pelvic floor retraining.
C. alpha-blockers.
D. CIC.
E. external sphincteric injection with onabotulinumtoxinA.
ANSWER=C
The flow rate is abnormal but there is no anatomic obstruction. This boy has primary bladder neck dysfunction since the bladder contraction precedes the onset of urine flow by a significant period of time. The treatment of choice would be alpha-1 receptor blockade for a period of several weeks to months followed by re-evaluation clinically, and repeat uroflow with EMG. External sphincter dyssynergia can be treated with botulinum toxin injection or pelvic floor retraining (biofeedback). Double voiding may decrease his PVR and improve his continence, but this will not address the primary problem. CIC would 'bypass' the blockage but would not be the preferred primary treatment.

112 Optimal tumor destruction during laparoscopic renal cryoablation is achieved by:
A. intraoperative ultrasound-guided cryo probe placement.
B. placing the cryo probe tip at the center of the tumor.
C. obtaining a target temperature of -10∞C.
D. extending the cryo lesion 2 cm beyond the tumor margin.
E. performing an active single freeze-thaw cycle.
ANSWER=A
Classically, cryoablation is used to treat tumors < 4 cm in size, with the laparoscopic approach used being dependent on the location of the tumor. Posterior and lateral tumors are usually approached retroperitoneally, and anterior or anterolateral tumors were approached transperitoneally. Theoretically, hilar tumors are more difficult to treat than peripherally located tumors due to the heat-sink effect caused by the renal blood flow within the renal hilar vessels. As such, target temperatures may be more difficult to achieve consistently throughout the entire tumor located near the renal hilum. Specific measures required to optimize tumor destruction during laparoscopic renal cryoablation include: 1) use of real-time intraoperative ultrasound to guide and confirm probe placement during laparoscopic insertion, 2) use of the ultrasound probe to monitor progression of the cryo lesion, 3) placement of the cryo probe tip at or just beyond the deepest or inner margin of the tumor, 4) obtaining target temperatures below -40 degrees Celsius during treatment, 5) extending the cryo lesion approximately 1 cm beyond the margin of the tumor, 6) performing an active double freeze-thaw cycle, as opposed to single cycle.

113 A 70-year-old man develops hematuria 18 months following a radical cystectomy and orthotopic neobladder. A urine cytology is positive for malignant cells. On cystoscopy, a focal area of erythema in the bulbar urethra reveals CIS. The next step is:
A. intraurethral BCG.
B. segmental urethrectomy.
C. segmental urethrectomy with perineal urethrostomy.
D. total urethrectomy.
E. XRT.
ANSWER=A
Urethral recurrence following radical cystectomy and orthotopic neobladder is a rare event with a reported incidence of 2-3%. While invasive tumors are an indication for total urethrectomy and ileal conduit, noninvasive tumors can be managed initially with conservative therapy. For papillary tumors, TUR alone may be curative for low grade recurrences. Intraurethral chemotherapy and immunotherapy have been used for highgrade noninvasive recurrences. In this patient with CIS, an initial attempt at preservation of the urethra and neobladder is warranted. For this reason, intraurethral BCG is the most appropriate choice.

114 The nerve that must be intact for the cremasteric reflex is:
A. iliohypogastric.
B. genitofemoral.
C. lateral femoral cutaneous.
D. ilioinguinal.
E. femoral.
ANSWER=B
The cremasteric reflex implies an intact reflex arc in the genital branch of the genitofemoral nerve. Both the iliohypogastric and ilioinguinal nerve supply motor function to the internal oblique and transversus abdominis. The obturator nerve is the motor nerve for muscles in the medial thigh compartment. The femoral nerve supplies motor function for the anterior thigh compartment. The lateral femoral cutaneous nerve does not have a motor function and supplies sensation to the lateral aspect of the thigh.

115 A 32-year-old man with chronic diarrhea is diagnosed with hypocitraturia. The best therapy is:
A. citrate repletion with lemonade.
B. potassium citrate tablet.
C. potassium citrate liquid.
D. sodium citrate liquid.
E. magnesium oxide tablet and pyridoxine hydrochloride tablet.
ANSWER=C
For patients with chronic bicarbonate losses due to diarrhea, citrate should be employed to correct the resulting acidosis. It is recommended that a liquid preparation of potassium citrate be used rather than the slow-release tablet preparation because the slow-release medication may be poorly absorbed due to trapid intestinal transit time. Lemonade therapy is unlikely to normalize citrate levels, and the volume of fluid required will exacerbate the patient's diarrhea. Sodium citrate is not preferred, due to the sodium load which can promote hypercalciuria. Magnesium oxide and pyridoxine are useful treatments for hyperoxaluria, but not for hypocitraturia.

116 A 60-year-old man with CIS of the bladder received an induction course of BCG. Follow-up biopsy shows no residual tumor, and cytology shows mild atypia. The next step is:
A. cystoscopy and cytology in three months.
B. monthly BCG for one year.
C. three weeks of BCG at three and six months, then every six months for two years.
D. intravesical mitomycin C for six weeks.
E. an additional six weeks of BCG.
ANSWER=C
In a randomized clinical try, observation alone after successful BCG induction has been associated with a high recurrence rate when compared to three weekly maintenance BCG treatments at three months, six months and then every six months for two years. Prior randomized trials using other maintenance schedules have not been associated with a significant decrease in recurrence rates and, therefore, intravesical BCG on a monthly basis is not correct and there is no indication to initiate repeat induction BCG therapy. Monthly mitomycin maintenance has not been evaluated following BCG response in the setting of CIS.

117 A three-year-old boy has a fever of 100∞F, WBC count of 17,000, and purulent umbilical drainage. Pelvic ultrasound reveals a 2 cm complex mass between the umbilicus and dome of the bladder. The next step is antibiotics and:
A. cystoscopy.
B. incision, drainage and packing.
C. excision of urachus and partial cystectomy.
D. delayed excision of urachus.
E. chemical sclerosis of the sinus tract.
ANSWER=D
Congenital abnormalities of the urachus include a urachal sinus, urachal cyst, patent urachus, vesicourachal diverticulum, and omphalomesenteric cyst/duct. Urachal abnormalities occur equally between boys and girls and present more often in adulthood with umbilical drainage followed by an umbilical mass and periumbilical pain. Staphylococcus aureus is the most common bacteria cultured

from an infected sinus tract or cyst. An important aspect of treatment is initial antibiotic therapy. Incision and drainage or percutaneous drainage should be considered for a loculated abscess,particularly when it is non-responsive to antibiotic therapy. Omphalomesenteric ducts may connect the midgut to the umbilicus. Ultrasound will demonstrate a periumbilical mass and a sinogram will reveal communication of the umbilical sinus to the ileum. Definitive treatment centers on excision that should be delayed for a few weeks following the initial antibiotic therapy in order to decrease the inflammatory response. This will help limit the amount of bladder that may need to be resected and will reduce the risk of injury to adjacent intra-peritoneal structures.

118 Normal semen pH (alkaline) is derived mainly from the:
A. prostate.
B. seminal vesicles.
C. testes.
D. vas deferens.
E. epididymis.
ANSWER=B
Semen pH is alkaline (pH > 7.2). This is due to the larger amount of alkaline fluid from the seminal vesicles (SVs) over the smaller volume of acidic fluid from the prostate. Very little alkaline fluid is provided by the vas, testes, or epididymides. Alkaline pH of semen is needed for correct function of sperm. The knowledge of semen volume and pH is very important because it is diagnostic, and can determine ejaculatory duct obstruction (EJDO) and congenital bilateral absence of the vas deferens (CBAVD) from other obstructive causes of azoospermia. Both EJDO and CBAVD have low volume acid pH semen due to obstruction and absence of the SVs respectively. Bilateral vasectomy or epididymal obstruction would result in normal semen volume and pH with azoospermia since the SVs are not obstructed.

119 A 21-year-old man who underwent inguinal orchiectomy for a pure seminoma of the right testis has an 11 cm retroperitoneal mass. Serum beta-hCG and AFP are normal. Following three cycles of BEP, repeat CT scan demonstrates a residual 2 cm mass in the inter-aortocaval region. Chest CT scan is negative, and tumor markers remain normal. The next step is:
A. local excision of the mass.
B. RPLND.
C. observation.
D. salvage chemotherapy.
E. retroperitoneal XRT.
ANSWER=C
The size of residual masses is an important predictor of viable malignancy; 27% to 38% of discrete residual masses larger than 3 cm contain viable malignancy compared with 0% to 4% for masses < 3 cm. Moreover, surgical resection is technically difficult due to severe fibrosis, and often incomplete. The recommended management for this situation (small tumor < 3 cm) is observation with serial physical exam, serum markers, and CT scans. Recently, FDG-PET has been found to be a useful adjunct to CT to select patients for post-chemotherapy surgery. Thus, patients with discrete residual masses > 3 cm should be evaluated further with FDG-PET and those who are PET positive should undergo surgery. PET-negative residual masses > 3 cm and masses < 3 cm (as above) should be observed. This management should be distinguished from individuals with mixed germ cell tumors or non-seminomatous germ cell tumors in whom RPLND is indicated for the vast majority of residual masses within the retroperitoneum. .

120 A nine-year-old boy has primary nocturnal enuresis. He has daytime urgency and frequency, but remains dry. He has used an alarm for four months without improvement. Urinalysis is normal. The next step is:
A. voiding diary.
B. urodynamics.
C. VCUG.
D. DDAVP.
E. oxybutynin.
ANSWER=A
Children who initially fail an alarm system in the treatment of nocturnal enuresis will benefit from combination therapy e.g., enuretic alarm with pharmacological treatment. Comparison of estimated bladder capacity (age in years x 30 ml + 60 ml = bladder capacity) divided by the mean of the voided diurnal urine volumes obtained on a voiding diary can guide combination therapy. Patients with values of > 70% (estimated bladder capacity/mean diurnal voided volume) will have a better response to the combination of a enuretic alarm and DDAVP. Response to enuretic alarm and anticholinergic medication is better in patients with < 70% (estimated bladder capacity/ mean diurnal voided volume).

121 A 24-year-old woman with cystic fibrosis undergoes ureteroscopic treatment of a calcium oxalate stone. The most likely etiology of stone formation is:
A. absent Oxalobacter formigenes.
B. absorptive hypercalciuria.
C. reduced urinary magnesium.
D. reduced urinary sodium.
E. renal tubular acidosis.
ANSWER=A
Cystic fibrosis (CF) is a progressive, lifelong condition in which the glands that produce mucus, sweat, and intestinal secretions produce abnormally high amounts of NaCl. The abnormal functioning of the epithelial cells result in thick mucus accumulation in the lungs, leading to breathing difficulty and repeated respiratory infections, impaired digestion due to thick mucus blocking the pancreatic ducts with failure of pancreatic enzymes secretion, and infertility (> 98% of affected men are infertile) due to vasal atrophy and dissolution. Vasal dissolution presumably occurs secondary to mucus build- up within the vasal lumen and pressure induced atrophy. Due to the thick build-up of mucous within the lungs and recurrent pulmonary infections, many of the patients with CF are exposed to prolonged antibiotic use resulting in the loss of the intestinal bacteria, Oxalobacter formigenes. This bacteria normally metabolizes intestinal oxalate, reducing the amount of oxalate available for systemic absorption. Due to the lack of digestive pancreatic enzymes, cystic fibrosis patients will frequently have intestinal malabsorption resulting in diarrhea, caloric deficiencies and deficiencies in the absorption of Vitamins A, D, E, and K and the minerals of calcium, magnesium, iron, sodium chloride, and zinc. To combat these deficiencies, CF patients are encouraged to eat a diet high in calories, fat, and salt. The elevation in salt intake is critical in CF patients due to the high salt content (> 10 fold normal) found in the sweat of affected patients. Individuals with cystic fibrosis will, therefore, not have absorptive hypercalciuria; indeed, they have a failure to absorb calcium from their GI tract due to saponification of calcium by the high fat content of their stools. They will have elevated levels of urinary sodium due to increased sodium intake. CF patients do have diarrhea with resultant hypocitraturia and hypomagnesuria; however, replacement of citrate or magnesium have not been found to reduce stone formation within this patient population. The chief cause of stones in patients with CF is the excess oxalate absorbed due to absence of Oxalobacter formigenes, the saponification of calcium within the intestine, and low urinary volume secondary to fluid depletion from diarrhea. Renal tubular acidosis is not part of the cystic fibrosis disease complex.

122 A 32-year-old woman has a two year history of hypertension treated with a diuretic. BP is 150/95, sodium 135 mEq/l, creatinine 0.8 mg/dl and potassium 2.7 mEq/l. The most likely diagnosis is:
A. essential hypertension.
B. aldosteronoma.
C. adrenal hyperplasia.
D. fibromuscular dysplasia.
E. Bartter's syndrome.
ANSWER=A
Primary hyperaldosteronism (Conn's Syndrome) due to adrenal hypersecretion of aldosterone causes hypertension and hypokalemia in non-edematous patients. Conn's syndrome accounts for about 1% of hypertensive patients, usually women between the ages of 30-50 years. Patients typically have hypertension, muscle weakness, polyuria, hypokalemia, and mild metabolic acidosis. However, essential hypertension treated with diuretics is the most common cause of hypokalemia in patients with hypertension. Secondary hyperaldosteronism can be due to renal artery stenosis, cardiac failure, hepatic cirrhosis, pregnancy and Bartter's Syndrome (due to juxtaglomerular cell hyperplasia). .

123 A two-year-old boy with stranguria develops gross hematuria. Urine culture is negative. Ultrasound shows normal kidneys and bladder. The next step is:
A. CT urogram.
B. urine cytology.
C. VCUG.
D. MRI scan with gadolinium.
E. cystoscopy.
ANSWER=C
Stranguria and gross hematuria in a child with a normal ultrasound suggests a possible urethral abnormality, such as congenital urethral polyp, or urethral stricture. A VCUG will likely be diagnostic. CT scan and MRI are unlikely to add useful information in a patient with a normal renal and bladder ultrasound and urine cytology is not indicated. Cystoscopy may be indicated based on the findings of the VCUG.

124 A 35-year-old woman with diabetes has asymptomatic bacteriuria on a routine urine analysis. The next step is:
A. antibiotics.
B. antibiotics followed by regular screening urinalyses.
C. imaging of the urinary tract.
D. antibiotics followed by cystoscopy.
E. no treatment.
ANSWER=E
Asymptomatic bacteriuria has not been demonstrated to cause harm in most adults. While these patients are at risk for developing symptomatic UTIs, treatment of the asymptomatic bacteriuria does not result in fewer symptomatic UTIs. In contrast, treatment of asymptomatic bacteriuria is indicated in pregnant women and patients undergoing urologic procedures because they are at increased risk of developing adverse outcomes if left untreated. The presence of diabetes is not an indication to screen for or treat asymptomatic bacteriuria. Neither imaging studies nor cystoscopy is indicated if the bacteriuria is asymptomatic. In this setting, a culture should not be sent because it will not affect management.

125 A contraindication to cytoreductive nephrectomy prior to systemic therapy in an asymptomatic patient with metastatic RCC is:
A. brain metastasis.
B. vena caval thrombus.
C. involvement of the contralateral adrenal gland.
D. sarcomatoid cell histology.
E. pulmonary metastases.
ANSWER=A
Cytoreductive nephrectomy as part of a multidisciplinary approach to metastatic RCC has been shown to prolong survival in two randomized clinical trials. However, its use is controversial and proper patient selection is crucial. The following inclusion criteria have been suggested for selecting patients for cytoreductive nephrectomy: 1) ability to resect more than 75% of the tumor volume, 2) no brain metastases, 3) adequate pulmonary and cardiac reserve, 4) ECOG performance status of 0 or 1, and 5) predominantly clear cell histology. Although sarcomatoid cell histology has been associated with poor prognosis it is not a contraindication to cytoreductive nephrectomy. Patients with brain metastasis should be treated with stereotactic radiation or CNS surgery prior to consideration for cytoreductive nephrectomy.

126 Twenty-four hours after a newborn circumcision, a circumferential skin separation with a 1.5 cm defect is noted. The best management is:
A. observation with local wound care.
B. immediate repair.
C. delayed repair.
D. split thickness skin graft.
E. full thickness skin graft.
ANSWER=A
Minor degrees of separation of circumcision edges are common. Complete separation as described is uncommon. This incision should be considered contaminated in the baby's diaper. Therefore, immediate closure is not recommended. Skin grafts are not indicated because of the contaminated bed and would have a high risk of infection. Since the length of the skin was adequate at the time of circumcision, observation is the best choice. Usually this complication rapidly heals well and nothing further will be necessary. If an undesirable scar develops, it can be revised or grafted electively at a later time. Palmer JS: Abnormalities of the external genitalia in boys,

127 A 19-year-old man sustained a gunshot wound to the abdomen. Preoperative imaging was not performed. During emergent exploratory laparotomy, a non-expanding, non-pulsatile, left retroperitoneal hematoma is encountered. The next step is:
A. observation.
B. intraoperative sonography.
C. one shot IVP.
D. renal arteriography.
E. left renal exploration.
ANSWER=C
The main purpose of the one shot IVP is to assess for the presence of a functioning contralateral kidney and to assess the degree of damage to the ipsilateral kidney and ureter when a non-expanding, non-pulsatile retroperitoneal hematoma is encountered during abdominal exploration for a GSW in the absence of preoperative imaging. Ultrasound cannot delineate parenchymal lacerations, vascular injury, or collecting system or ureteral injuries in the acute setting. Renal arteriography is not indicated in the acute, intra-operative setting. Expectant management has been advocated as long as there is not an expanding or pulsating hematoma and renal pelvic or ureteral injury can be excluded by pre-operative CT scan or pre- or intra-operative one-shot IVP. Because of the risk of renal loss with exploration, a conservative approach is advocated and has been associated with a lower nephrectomy rate. In the presence of an expanding or pulsatile retroperitoneal hematoma, renal exploration is indicated.

128 An otherwise healthy 65-year-old man elects active surveillance for T1c, PSA 8.2 ng/dl, Gleason score 6 (1 of 12 cores positive) prostate cancer. His DRE remains normal and has subsequent serial PSA values of 7.1, 9.2, and 7.9 ng/dl at 6, 12, and 18 months respectively. The next step is:
A. endorectal MRI scan.
B. TRUS and prostate biopsy.
C. bone scan.
D. ProstaScint^TM scan.
E. definitive local therapy.
ANSWER=B
This patient has low risk clinically localized prostate cancer (normal DRE, PSA <10, Gleason score < 7, and minimal core involvement). Although there is no clinical or biochemical evidence at this point of disease progression, a repeat prostate biopsy within 18 months is an essential component of active surveillance and can provide important information useful in management. This is especially true for men electing active surveillance who have a life-expectancy > 10 to 15 years and are otherwise candidates for definitive therapy. A repeat biopsy may provide information that would lead one to consider local therapy. This includes grade progression and an increase in the percentage of the biopsy specimen involved with cancer. MRI remains investigational as a tool for monitoring patients on active surveillance. Bone scan and ProstaScintÆ scan are not indicated at this point in time. :

129 A four-week-old boy has a febrile UTI. Renal ultrasound shows right hydroureteronephrosis with the distal ureter measuring 2.0 cm in diameter and a normal left kidney. VCUG is normal and a MAG-3 scan shows 80% function on the left and 20% on the right. T Ω on the right is > 30 minutes. The next step is antibiotics and:
A. ultrasound and MAG-3 scan in three months.
B. percutaneous nephrostomy.
C. distal cutaneous ureterostomy.
D. primary ureteral reimplant with tapering.
E. nephrectomy.
ANSWER=C
This baby has a clinically and functionally significant right distal ureterovesical junction obstruction associated with decreased renal function. The diagnostic parameters indicate that treatment is needed. Observation is inappropriate and may result in further loss of renal function and/or severe infection in this obstructed system. Definitive treatment would entail ureteral reimplantation with tapering. However, this is technically challenging in this age group and better

deferred for a child older than one year of age. A percutaneous nephrostomy tube requires external drainage which is not practical when required longer than several weeks. The most appropriate temporizing procedure is a distal cutaneous ureterostomy. Another option to be considered is an anastomosis of the distal ureter to the bladder in a refluxing manner.

130 A 24-year-old man on CIC for a neurogenic bladder is unable to catheterize. Retrograde urethrogram reveals a 2 cm proximal bulbar urethral stricture. The next step is:
A. direct vision internal urethrotomy and resume CIC.
B. suprapubic tube placement.
C. excision and primary anastomosis.
D. bulbar urethroplasty with graft.
E. bulbar urethroplasty with flap.
ANSWER=B
Urethral "rest" involves a period of several weeks where the urethra is not instrumented. This "rest period" allows inflammation to decrease within the lumen and facilitates accurate identification of severely fibrotic segments of the stricture which will eventually require focal or complete excision. Suprapubic tube urinary diversion, removal of a urethral catheter after recent instrumentation, or cessation of CIC all accomplish urethral rest. The median duration of urethral rest is reported as three months in this study; however, repeat urethral staging can be repeated at four to six weeks. Urethroplasty following recent dilation, CIC, or DVIU may not accurately assess the location and severity of fibrotic urethral segments thus understaging the disease and placing the patient at a higher risk for recurrence following urethroplasty. DVIU is not indicated in any situation for a urethral stricture > 1.5 cm. The urethroplasty technique will depend on the degree and length of fibrotic urethra following urethral rest.

131 A 52-year-old man undergoes right partial nephrectomy and regional lymphadenectomy for a large upper pole tumor in a solitary kidney. A drain is placed in the renal fossa. The drain output increases precipitously when the patient begins a regular diet. The drain output is a milky white fluid. The test which will confirm the diagnosis is:
A. drain fluid amylase and lipase level.
B. drain fluid fat and total protein level.
C. drain fluid creatinine level.
D. activated charcoal test.
E. abdominal CT scan with oral and I.V. contrast.
ANSWER=B
Similar to retroperitoneal lymph node dissection for testicular cancer, chylous leak can occur after regional lymphadenectomy at the time of renal surgery. Care must be taken to ligate small lymphatic vessels, particularly those close to the cisterna chyli below the right crus. In a setting where a drain is left in place, the fluid will have a milky white appearance and will have elevated fat and total protein levels. While pancreatic injury and fistula needs to be considered in the setting of a resection of a large left-sided upper pole tumor, this is not as likely on the right side. In addition, the clinical presentation is not consistent with a pancreatic leak, as pancreatic fluid is usually clear. Similarly, a urine leak would present with clear fluid. Finally, an unrecognized bowel injury resultingin enterocutaneous fistula is unlikely given the appearance of the fluid. Therefore, an activated charcoal test would not be helpful. Eichel L, Clayman RV: Fundamentals of laparoscopic and robotic urologic surgery,

132 The appropriate maintenance I.V. fluid for a 14 kg child is:
A. 25 ml/hr of 1/2 NS.
B. 50 ml/hr of 1/2 NS.
C. 50 ml/hr of Lactated Ringers Solution.
D. 75 ml/hr of 1/4 NS.
E. 75 ml/hr of 1/2 NS.
ANSWER=B
Maintenance fluids are based on body weight. One formula is: 4 ml/kg/hr for the first 10 kg and 2 ml/kg/hr for the second 10 kg, then 1 ml/kg/hr for the remainder. Hence, for a 14 kg child, 48 ml/hr is appropriate (or approximately 50 ml/hr). Infants under six months are generally given 1/4 NS because of their high water needs per kg, but older than 6 months should receive 1/2 NS.

133 A 28-year-old man sustains a straddle injury with bulbar urethral disruption. A suprapubic tube is placed for three months. Cystoscopy and retrograde urethrogram reveal a 1 cm mid bulbar urethral stricture with a 4 Fr lumen. The next step is:
A. dilation.
B. direct visual internal urethrotomy with mitomycin injection.
C. laser urethrotomy.
D. excision and primary anastomosis.
E. urethroplasty with graft.
ANSWER=D
The patient has suffered a significant blunt bulbar urethral injury. Dilation and DVIU would have a much lower success rate in this situation as compared to non- traumatic strictures, as traumatic strictures have significant spongiofibrosis. The best treatment is excision of the strictured urethral segment and primary anastomosis of healthy urethral mucosa and spongiosum. A patch graft could be considered, but the outcomes with a nearly obliterated urethra and significant spongiofibrosis would be inferior to excision and primary anastomosis. Mitomycin injection may be indicated in recurrent bladder neck contractures but is not indicated in this situation.

134 A 57-year-old man has a 2 cm cT2 urothelial carcinoma of the bladder. He opts for chemoradiation. The most effective concurrent chemotherapeutic agent is:
A. methotrexate.
B. vinblastine.
C. doxorubicin.
D. cisplatin.
E. paclitaxel.
ANSWER=D
Bladder preservation with chemoradiation can be effective in well-selected patients. The use of radical TURBT and concurrent radiosensitizing chemotherapy has achieved ~50% five year survival. The most well-studied and effective chemotherapeutic agent used in this setting is cisplatin. Methotrexate, vinblastine, and doxorubicin are all important systemic agents with efficacy against bladder cancer; however, they do not have significant roles as concurrent treatments along with radiation therapy. Paclitaxel may have a selected role as a radiosensitizer, but to a much lesser degree than cisplatin. Lerner SP, Sternberg CN: Management of metastatic and invasive bladder cancer,

135 A ten-month-old girl undergoes left nephrectomy for Wilms' tumor. The right kidney is normal at the time of surgery. Pathology reveals the presence of perilobar nephrogenic rests. She is at increased risk for:
A. nephrotic syndrome.
B. renal failure.
C. metachronous Wilms' tumor.
D. local recurrence.
E. metastatic disease.
ANSWER=C
Approximately 1% of children with unilateral Wilms' tumor develop contralateral disease. Children younger than 12 months diagnosed with Wilms' tumor who also have nephrogenic rests, in particular perilobar nephrogenic rests, have a markedly increased risk of developing contralateral disease. These children require frequent and regular surveillance for several years. They are not at higher risk for renal disease (other than that usually associated with nephrectomy, chemotherapy, radiation therapy), nor is she at greater risk for local or distant recurrence.

136 A 22-year-old woman with a prior history of right nephrolithiasis and ureteroscopic stone extraction has right flank pain. Serum creatinine is 1.0 mg/dl. A CT urogram demonstrates left hydronephrosis, no calculi and a 6 cm ureteral stricture extending from the UPJ to mid-ureteral region. Diuretic renal scan shows left renal function of 35% and T1/2 of 40 minutes after Lasix administration. The next step is:
A. endopyelotomy.
B. transureteroureterostomy.
C. ureterocalicostomy.
D. appendiceal ureteral substitution.
E. ileal ureter.
ANSWER=E
Proximal and large ureteral defects are difficult to manage. The surgeon must be ready to use a variety of approaches depending on the intraoperative findings. Due to poor long term outcomes,

endopyelotomy is contraindicated in strictures over 2 cm. Ureteroureterostomy is ideal for short upper or mid-ureteral strictures but is not possible with large defects. Transureteroureterostomy is contraindicated in those with nephrolithiasis. Ureterocalicostomy is reserved for individuals with UPJ and proximal 2- 3 cm stricture with a dilated lower pole calyx, this patient has a length ureteral stricture to amenable to this procedure. Ileal ureter should be considered for long, > 4 cm upper ureteral defects, in patients with serum creatinines of < 2.0 mg/dl. Fallopian tube and appendiceal substitutions although described, are not reliable reconstructive techniques and are associated with recurrent stricture on long-term follow-up. Other options for this patient include autotransplantation or nephrectomy. Nephrectomy is usually considered as a last resort and is reserved for patients with a normal serum creatinine and poor function (classically < 20% on renal flow scan).

137 A 70-year-old asymptomatic woman has bladder cancer surveillance after cystectomy and ileal conduit diversion. Her family physician recently checked a random urine culture which revealed > 100,000 Proteus species. The next step is:
A. observation.
B. repeat urine culture.
C. antibiotic therapy.
D. loopogram.
E. non-contrast CT scan.
ANSWER=C
Approximately three quarters of urine specimens from ileal conduits are culture positive. Most adult patients show no untoward effects when exposed to chronic bacteriuria. Deterioration of the upper tracts is more likely when the culture becomesdominant for Proteus or Pseudomonas, and thus, these patients should receive antibiotic therapy to reduce the incidence of stone formation. Those patients with mixed cultures may generally be observed, provided they are not symptomatic. Further imaging in this asymptomatic patient is not indicated.

138 An 11-year-old boy is shot by a .22 caliber rifle and suffers a penetrating injury to the left renal cortex. The injury did not require surgery. Six months later, he develops headaches and is found to be severely hypertensive. Both kidneys measure 10 cm on ultrasound. Renal nuclear scan shows equal function of both kidneys with no photopenic areas. The most likely cause of his hypertension is:
A. arteriovenous fistula.
B. global renal scarring.
C. renal infarction.
D. renal vein thrombosis.
E. segmental renal scarring.
ANSWER=A
Post-traumatic hypertension can occur in the setting of renal ischemia, development of an arteriovenous (AV) malformation, or kidney compression from a hematoma. The ultrasound rules out infarction, venous thrombosis and global scarring. The nuclear scan rules out infarction and segmental and global scarring. In this case of delayed development of hypertension, the most likely cause is an AV fistula secondary to penetrating trauma. Diagnosis can be made with an MRI or CT angiogram. Successful treatment is usually achieved with angiographic embolization. In contrast to blunt or penetrating traumatic AV fistula, those occurring after a needle biopsy will often close spontaneously.

139 A 24-year-old man is shot with a high velocity hand gun in the mid-penile shaft. CT scan of the abdomen and pelvis reveals no other injuries. Retrograde urethrogram shows contrast extravasation from a 2 cm segment of the mid-penile urethra. The next step is:
A. cystoscopy and primary realignment.
B. suprapubic tube placement.
C. debridement and primary closure.
D. debridement and urethroplasty with graft.
E. debridement and urethroplasty with flap.
ANSWER=B
This patient has sustained a high velocity urethral injury. The best treatment is suprapubic tube placement followed by staged urethroplasty. The blast effect of the highvelocity missile will cause significant collateral tissue damage which will evolve over the next several days. Suprapubic urinary diversion is the best course of action as compared to a urethral catheter which may compound the injury, followed by restaging the injury and eventual staged urethroplasty. Penile urethroplasty with or without graft immediately following a high velocity injury is not indicated as the full extent of the urethral injury is not known. The patient will eventually require a urethroplasty; however, this should be performed following suprapubic urinary diversion and restaging of the injury.

140 A 52-year-old woman undergoes radical cystectomy with orthotopic urinary diversion. A maneuver to prevent hypercontinence (retention) is:
A. nerve-sparing techniques.
B. the use of > 60 cm of intestine for the reservoir.
C. omental packing anterior to the reservoir.
D. suspension of the pouch to the back of the rectus muscle.
E. suspension of the vagina to the endopelvic fascia.
ANSWER=D
Failure to empty occurs more commonly in female than in male patients. Uniquely, females may develop hypercontinence that is likely due to a mechanical issue in which the orthotopic diversion falls back into a wide pelvic cavity. This in turn results in an acute angulation of the posterior pouch-urethral junction. Various maneuvers including omental packing behind (posterior) to the reservoir, suspending the dome of the reservoir to the rectus muscle and suspension of the vaginal stump to the preserved round ligaments have been described to prevent this angulation. Nerve-sparing techniques and increased intestinal length have been described as risk factors for retention. Suspension of the pouch to the back of the rectus muscle at the time of surgery is the most effective way to prevent angulation and hypercontinence.

141 A five-year-old boy who had PUV fulgurated as a newborn is referred because of daytime urinary incontinence and nocturnal enuresis. An ultrasound shows stable bilateral hydronephrosis and VCUG shows a trabeculated bladder, no VUR and no residual valve tissue. Serum creatinine is normal. The next step is:
A. 24-hour urine volume and urodynamics.
B. diuretic renography.
C. antegrade pressure perfusion study.
D. antimuscarinics.
E. cystoscopy.
ANSWER=A
Boys with urethral valves often have problems with bladder training because of a combination of factors. Often these patients will have persistent tubular concentrating defects resulting in polydipsia and polyuria combined with small bladders capacities, detrusor overactivity with or without poor detrusor compliance. The low capacity bladder associated with large urine volume production results in significant urinary frequency, urgency, urge incontinence and primary nocturnal enuresis. The most useful studies to define the anomalies are a 24-hour collection for volume and urodynamics. Diuretic renography and antegrade pressure perfusion study are not indicated in this patient with stable hydronephrosis and normal creatinine. Cystoscopy would not be indicated with normal voiding phase of the VCUG. Antimuscarinics are not indicated unless bladder overactivity is documented on urodynamic study.

142 A 32-year-old man with congenital bilateral absence of the vas deferens (CBAVD) desires a biological child. Testing for the cystic fibrosis transmembrane conductance regulator (CFTR) gene is negative. The next step is:
A. test the man's parents for the CFTR gene.
B. proceed with testicular sperm extraction and ICSI.
C. CFTR testing of his female partner.
D. proceed with testicular sperm extraction and ICSI and do pre-implantation genetic diagnosis.
E. CFTR testing of the man's sperm.
ANSWER=C
Mutations in the CFTR are responsible for a phenotypic spectrum from overt cystic fibrosis to congenital bilateral absence of the vas deferens. Over 1,000 CFTR mutations have been identified and only a portion are detected by routine testing. The man should be assumed to be a CFTR carrier despite a negative CFTR gene test. Therefore, his female partner needs to be tested prior to any assisted

reproductive techniques to determine the risk of cystic fibrosis in their offspring.

143 A 77-year-old man with hypertension, coronary artery disease, and a creatinine of 1.3 mg/dl has gross hematuria. Cystoscopy reveals a normal bladder, and bilateral retrogrades show a small right distal ureteral filling defect. On ureteroscopy, there is a 5 mm solitary papillary tumor and biopsy demonstrates a low grade urothelial carcinoma. The next step is:
A. intravesical BCG with ureteral stent in place.
B. ureteroscopic laser ablation of tumor.
C. segmental resection and ureteroureterostomy.
D. distal ureterectomy with reimplant.
E. laparoscopic nephroureterectomy.
ANSWER=B
Multiple series have documented the safety and efficacy of endoscopic management of upper tract urothelial carcinoma (TCC). This elderly patient has significant comorbidities and a low grade distal ureteral TCC. Low grade tumors at ureteroscopic biopsy have a strong correlation with noninvasive stage at the time of nephroureterectomy. Similarly, high grade disease identified on ureteroscopic biopsy is very likely to represent invasive disease at the time of final pathologic staging. In a younger, healthier patient, distal ureterectomy and reimplantation would be another option; however, this older patient would be better served with endoscopic management. Although upper tract tumors can be ablated with electrocautery delivered through a small Bugbee electrode, the variable depth of penetration and risk of stricture formation have made the use of laser energy for ablation more popular.

144 A one-month-old boy undergoes left radical orchiectomy for a yolk sac tumor. Chest and abdominal CT scans are normal. Preoperative AFP is 2600 ng/dl, and postoperative levels at one and two months are 330 and 90 ng/dl. The next step is:
A. repeat AFP in one month.
B. ultrasound of right testis.
C. bone scan.
D. RPLND.
E. multiagent chemotherapy.
ANSWER=A
The half-life of AFP is approximately five days and the fall in AFP levels described in this patient would be considered abnormal and suspicious of metastatic disease in any patient > 18 months of age. However, in infants (< 18 months of age) with a yolk sac tumor the physician should see a precipitous drop in the AFP levels post-orchiectomy but persistent elevations in the AFP (> 10 ng/dl) are a normal finding. The reason behind the persistent elevation in AFP is its production in the fetal and neonatal liver. Indeed, AFP is the chief serum protein (instead of albumin) for the first six months of life. The persistentelevation in AFP in a neonate is a normal finding with the AFP levels reaching normal adult values (< 10 ng/dl) at approximately eighteen months of age. In infants undergoing resection of a yolk sac tumor serial AFP levels are obtained with evidence of persistent or recurrent disease noted by serial elevations of the AFP level above the nadir value.

145 The most effective medication class for the relief of pain associated with acute renal colic is:
A. alpha-blockers.
B. calcium channel blockers.
C. NSAIDS.
D. narcotics.
E. corticosteroids.
ANSWER=C
All five drug classes have been used for the pain relief of acute renal colic. NSAIDS and narcotics are most commonly used; however, meta-analysis and comparative studies show that NSAIDS are superior to narcotics for the acute relief of renal colic. NSAIDS treat the inflammatory basis of pain and reduce collecting system pressure as compared to narcotics. Narcotics are also associated with more side effects as compared to NSAIDS. Alpha-blockers, calcium channel blockers, and steroids are used more commonly for medical expulsive therapy.

146 A 56-year-old woman develops a 3.0 cm benign ureteral stricture at the left ureteroileal anastomosis six months after a radical cystectomy and ileal neobladder. Left renal function is 25%. The next step is:
A. endoscopic balloon dilation.
B. endoscopic laser incision.
C. metallic stent placement.
D. open surgical repair.
E. nephrectomy.
ANSWER=D
Ureterointestinal stricture can occur early or late after urinary diversion. The first step in management is to rule-out disease recurrence. Once it has been established that the stricture is not due to recurrent cancer, the most effective approach to management is open surgical repair. Although various minimally invasive approaches have been employed, including balloon dilation, cold knife or laser incision and stent placement, open surgical repair has been consistently shown to be the most effective way ofaddressing this problem, particularly in the setting of a longer stricture and decreased renal function. Minimally invasive approaches may be effective for shorter strictures (1-2 cm or less). Early ureteroenteric strictures (<1 yr postoperative) are usually due to devascularization of the distal ureter or extreme angulation of the left ureter at the level of the inferior mesenteric artery. Late strictures are usually due to a fibrotic response at the ureteroenteric junction. Nephrectomy is not indicated in this kidney with 25% shared function. In younger patients, a chronic ureteral stent is not indicated.

147 The most common long-term outcome for a renal arteriovenous fistula occurring after needle biopsy of the kidney is:
A. hematuria.
B. embolic events.
C. diastolic hypertension.
D. high output cardiac failure.
E. spontaneous closure.
ANSWER=E
Approximately 70% of arteriovenous fistulas occurring after needle biopsy of the kidney close spontaneously within 18 months. In the absence of significant related symptoms, expectant management is appropriate initially. The clinical manifestations of a renal arteriovenous fistula depend upon the size of the fistula. Congestive heart failure, cardiomegaly, and diastolic hypertension are observed in 50% of symptomatic patients. Hematuria is present in about a third, and tachycardia is occasionally found. Flank pain, embolic events, and hypertension are less common. In contrast, AVF following blunt renal trauma is much less likely to resolve spontaneously.

148 A 55-year-old man develops anterior thigh numbness following a ureteral reimplant and psoas hitch for a distal ureteral stricture. The nerve most likely injured is the:
A. lateral femoral cutaneous nerve.
B. ilioinguinal nerve.
C. genital branch of the genitofemoral nerve.
D. femoral branch of the genitofemoral nerve.
E. obturator.
ANSWER=D
The genitofemoral, ilioinguinal, and lateral femoral cutaneous nerve can be seen during the performance of a psoas hitch. Although this patient has suffered an injury to the femoral branch of the genitofemoral nerve, visualization of three nerves will usually result in sparing injury to these structures. Indeed, some studies have revealed the most common nerve injured during the performance of a psoas hitch is the femoral nerverunning in the undersurface or belly of the psoas muscle. Sutures placed horizontally in the psoas muscle increase the risk of injury to this nerve. Sutures for a psoas hitch should be placed longitudinally, e.g., in the direction that the muscle is running and superficially to prevent this complication. As noted, this patient has suffered an injury to the femoral branch of L1, L2 as a result of the psoas hitch. This nerve branch is responsible for sensation to the anterior thigh. The genital branch of L1, L2 is motor to the cremasteric muscles and scrotum. The lateral femoral cutaneous nerve is responsible for sensation to the lateral aspect of the thigh, and the ilioinguinal nerve provides sensation to the anterior pubis and scrotum. The obturator nerve provides sensation to the medial thigh.

149 A 52-year-old woman is admitted to the hospital with acute flank pain. She is hemodynamically stable. A non-contrast CT scan demonstrates an 8 cm lower pole renal mass measuring -20 Hounsfield units (HU) and evidence of perinephric bleeding. Serum creatinine is 1.6 mg/dl. Hematocrit is 25%. The next step is:

A. transfuse two units PRBC and bedrest.
B. selective angiographic embolization.
C. percutaneous thermal ablation.
D. partial nephrectomy.
E. radical nephrectomy.

ANSWER=B

The presence of even a small amount of fat within a renal lesion on CT scan (confirmed by a value of -20 HU or lower) virtually excludes the diagnosis of RCC and is diagnostic of angiomyolipoma (AML). There are very rare cases of fat containing kidney cancer, but most of those will have calcified areas. Approximately 20% to 30% of AMLs are found in patients with tuberous sclerosis syndrome (TS), an autosomal dominant disorder characterized by mental retardation, epilepsy, and adenoma sebaceum, a distinctive skin lesion. Most patients with acute or potentially life-threatening hemorrhage require total nephrectomy if it is explored; and if a patient has TS, bilateral disease, preexisting renal insufficiency, or other medical or urologic disease that could affect renal function in the future, selective embolization should be considered. In such circumstances, selective embolization can temporize and, in many cases, prove definitive. This patient is hemodynamically stable and may not require transfusion if selective embolization is successful. There is no role for radio frequency ablation or cryotherapy for a large AML that is acutely bleeding. A partial nephrectomy may be possible or desirable in the future; however, in the setting of acute bleeding, most explorations will result in nephrectomy, which would be undesirable for this woman with renal insufficiency.

150 The spread of urinary extravasation secondary to urethral injury below the urogenital diaphragm, when associated with a tear in Buck's fascia, is limited by the following fascial layers

A. Denonvilliers' and Colles'
B. Colles' and Scarpa's
C. Scarpa's and Denonvilliers
D. dartos and Colles'
E. dartos and Denonvilliers'

ANSWER=B

When infradiaphragmatic urinary extravasation extends through Buck's fascia, it is limited only by Colles' fascia which attaches posteriorly at the triangular ligament and laterally at the fascia lata of the thigh. Colles' fascia is continuous anteriorly with Scarpa's fascia which extends superiorly to the thoracoclavicular fascia. Therefore, both Colles' and Scarpa's fascia limit such an extravasation. Such an extravasation, particularly when associated with infection (periurethral phlegmon), can result in edema and necrosis of the skin of the penis, scrotum, and anterior body wall. Denonvillier's fascia does not connect with Colles', Scarpa's, or dartos fascias. Colles' is contiguous with dartos fascia.

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1. Secretion of aldosterone is primarily mediated by:

A. ACTH.
B. renin.
C. serum potassium level.
D. sodium concentration in the proximal tubule.
E. sodium concentration in the collecting duct.

ANSWER=B

ACTH and serum potassium may increase aldosterone secretion but the effect is much less pronounced than that achieved by renin. The primary mechanism for control of aldosterone production resides in a feedback system involving the kidney and its juxtaglomerular apparatus. In the presence of appropriate stimuli {i.e., decreased renal perfusion pressure), juxtaglomerular cells release renin which results in the increased production of angiotensin II. Angiotensin II is a potent stimulator of aldosterone output from the zona glomerulosa of the adrenal cortex. Sodium concentration in the thick ascending Loop of Henle (not the proximal tubule or collecting duct) can also be sensed by the macula densa which can stimulate the release of renin.

2. A 55-year-old man undergoes a left lower pole partial nephrectomy for a 3.5 cm solid renal mass. The contralateral kidney is normal. Two days postoperatively, his serum hematocrit drops from 32% to 28% over 24 hours. Urine is dark burgundy in color. Vital signs are stable. The next step is:

A. angiography and embolization of bleeding vessels.
B. reoperation with suture ligation of bleeding vessels.
C. reoperation with nephrectomy.
D. bedrest, serial monitoring, and transfusions as needed.
E. ureteral stent placement.

ANSWER=D

Complications of partial nephrectomy include hemorrhage, urinary fistula formation, ureteral obstruction, renal insufficiency, and infection. Significant intraoperative bleeding can occur in patients who are undergoing partial nephrectomy. The need for early control and ready access to the renal artery is emphasized. Postoperative hemorrhage may be self-limiting if confined to the retroperitoneum with or without associated gross hematuria. The initial management of postoperative hemorrhage is expectant with bed rest, serial hemoglobin and hematocritdeterminations, frequent monitoring of vital signs, and blood transfusions as needed. Angiography may be helpful if bleeding persists, to localize actively bleeding segmental arteries, which may be controlled by angioinfarction. Severe intractable hemorrhage may necessitate re-exploration with early control of the renal vessels and ligation of the active bleeding points. Ureteral stent is not indicated.

3. Five years after a radical cystectomy and ileal conduit for bladder cancer, a 65-year- old man has a serum creatinine of 3.0 mg/dl, BUN 40 mg/dl, sodium 146mEq/l, potassium 4.6mEq/l, and bicarbonate 16mEq/l. A loopogram shows a 35 cm long moderately dilated conduit with grade 4 reflux into dilated upper tracts. The most appropriate treatment is:

A. sodium citrate.
B. injection of bulking agent into the ureteroenteric anastomosis.
C. revision of conduit length and stoma.
D. excision of ileal conduit and conversion to a non-refluxing colon conduit.
E. bilateral nephrectomies and placement on transplant list.

ANSWER=C

Despite improvement in surgical techniques, stomal stenosis is still the most likely cause of the elongated dilated conduit with hydronephrosis and hyperchloremic acidosis. Therefore, the most appropriate treatment is revision of the stoma and shortening of the conduit. Administration of electrolytes is symptomatic treatment only and does not address the anatomic cause of the acidosis. Conversion to a non-refluxing colon conduit is not required in this setting where a simpler procedure, shortening of the ileal conduit and stomal revision, will suffice. Treatment of high-grade vesicoureteral reflux by a bulking agent in an ileal conduit is not indicated; the high-grade reflux is a direct sign of distal obstruction and is usually due to either stomal or mid-ileal loop stenosis. Although this patient may eventually need a renal transplant, a functional loop is necessary for transplantation, therefore, revision of the loop is indicated. No indications are currently present for proceeding with bilateral nephrectomy.

4. A seven-year-old, neurologically normal boy with recurrent UTIS and worsening diurnal incontinence has a normal renal ultrasound and VCUG. His bowel function is normal. Urodynamic evaluation reveals detrusor overactivity and increased sphincter activity during voiding. His initial treatment should be:

A. maintenance of voiding diary and timed voiding.
B. biofeedback pelvic floor muscle retraining.
C. oxybutynin.
D. prazosin.
E. sacral neuromodulator.

ANSWER=A

Dysfunctional voiding syndrome is frequently manifested by worsening diurnal incontinence posturing when voiding, with or without primary nocturnal enuresis, recurrent UTIs, and encopresis. Classically, urodynamic studies will reveal poor cerebral appreciation of sudden detrusor contractions. Voluntary sphincter contraction is thought to be a response to sudden detrusor contraction. This can arise from either delayed neurourologic maturation of inappropriately learned voiding behavior. Initial treatment should be with maintenance of a voiding and stooling diary, timed voiding every two hours while awake, and treatment of constipation issues if present. Approximately 80-85% of patients will resolve their symptoms on this treatment. Individuals failing the conservative management outlined above may be treated by either the addition of antimuscarinics, such as oxybutynin or alternatively, behavior modification with biofeedback pelvic floor muscle retraining. Use of a sacral neuromodulator should only be considered after the patient has failed the more conservative treatment modalities outlined above. Prazosin, an alpha-1- receptor blocker, is potentially useful in the setting of bladder neck dysfunction, but not in the patient described above.

5. Two grams of oral ascorbic acid (Vitamin C) per day will:

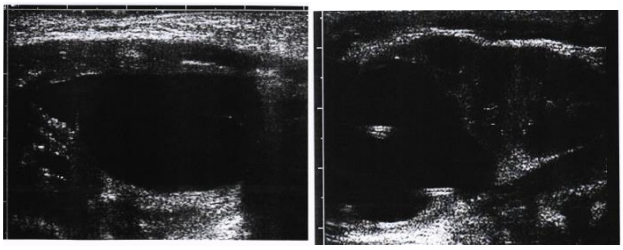
A. decrease urinary calcium.
B. increase urinary oxalate.
C. decrease urinary magnesium.
D. decrease urinary acidity.
E. decrease urinary citrate.

ANSWER=B

Approximately 10-20% of dietary ascorbate is metabolized into oxalic acid that is then excreted into the urine. Ascorbic acid in doses of 2 grams daily was shown to increase urinary oxalate by 20-30%, but had no effect on urinary pH, citrate, calcium, or magnesium.

6. A one-month-old girl with prenatal hydronephrosis underwent postnatal imaging as shown. The most likely cause of findings in the bladder and kidney is:

A. VUR.
B. UPJ obstruction.
C. ureterocele.
D. bladder diverticulum.
E. ectopic ureteral insertion into the vagina.



ANSWER=C

Ureteral duplication is one of the most common renal abnormalities with approximately 1% of the population diagnosed as having a duplication anomaly during their lifetime with 10% of the affected individuals will have a bilateral duplication anomaly. In individuals with a duplication anomaly, 10% are diagnosed following an evaluation for a UTI, another 10% are discovered during an evaluation for prenatal hydronephrosis, and the remainders are incidentally discovered during radiographic evaluations. Severe upper pole hydronephrosis of a duplicated moiety is commonly associated with either a ureterocele or ureteral ectopy, while lower pole hydronephrosis is commonly associated with vesicoureteral reflux or a UPJ obstruction. In this patient, the ultrasound (US) images are classic for obstruction of the upper pole due to a ureterocele. Differentiation of a ureterocele from an ectopic ureter can at times be problematic. Indeed, the term "pseudoureterocele" has been coined for enlarged ectopic ureter that protrudes into the bladder. Classically, a tip off that it is an ectopic ureter and not a ureterocele is found in the thickness of the ureterocele membrane. Presence of a thin-wall membrane is almost invariably associated with a ureterocele. In contrast, a thick-walled "ureterocele" or cystic structure may indicate a ectopic ureter with the thick wall being attenuated detrusor muscle. Inadvertent endoscopic incision of a pseudoureterocele has led to the creation of detrusor-ureteral-vaginal fistulas that may be highly problematic to repair in a neonate. To differentiate an ectopic ureter (pseudoureterocele) from a ureterocele, a VCUG may be helpful. If the ectopic ureter inserts into the bladder neck or urethra, reflux into the upper system may be found confirming the diagnosis of an ectopic ureter. If no reflux is noted and the physician has a high degree of suspicion that the diagnosis is truly an ectopic ureter, a pelvic MRI or CT scan may be of benefit.

7. A newborn girl had moderate left hydroureteronephrosis on prenatal ultrasound. Ultrasound at one month of age demonstrates normal kidneys bilaterally. Physical examination is normal. The next step is:

A. observation.
B. VCUG.
C. MAG-3 renal scan.
D. repeat ultrasound in three months.
E. MR urogram.

ANSWER=B

It is not uncommon for children with prenatally recognized hydronephrosis to have normal renal ultrasounds after birth. Many of these represent patients with insignificant prenatal physiologic dilation. Specifically, in patients with a history of mild to moderate fetal hydronephrosis and a normal postnatal ultrasound, the latter obtained one to two months postpartum; additional evaluations are deemed unnecessary. The exception to this rule is the finding of moderate to severe hydroureteronephrosis found on the prenatal evaluation with a normal post-partum ultrasound. The presence of ureteral dilation on the prenatal ultrasound has been found to be associated with a significant increased risk for neonatal UTIs and high grade vesicoureteral reflux despite a normal postpartal renal ultrasound. Documentation of ureteral dilation on the fetal ultrasound, therefore, results in the recommendation that a neonatal VCUG be obtained. Observation alone may miss the opportunity to diagnose high grade VUR and place this infant at significant risk. Repeat ultrasound at such a short interval is not indicated and, if normal, would not obviate the need for a VCUG. MAG-3 renal scan should be considered if the neonatal follow-up ultrasound evaluations demonstrate persistent hydroureteronephrosis and the VCUG reveals absence of reflux. Antibiotic prophylaxis is recommended for infants found on neonatal ultrasound to have a dilated ureter and/or VUR. Unless the renal ultrasound reveals a structural abnormality, i.e., poorly defined duplication anomaly, magnetic resonance urogram would not be indicated. Serial observation without the need for antibiotic prophylaxis would be indicated in the presence of hydronephrosis alone without evidence of prenatal ureteral dilation. In these latter infants, a MAG-3 renal scan with a diuretic washout phase would be indicated at two to three months of age.

8. A 16-year-old boy passes a stone composed of 100% cystine. This condition is characterized by:

A. excessive jejunal absorption of cystine.
B. excessive tubular resorption of arginine and lysine.
C. inadequate tubular resorption of ornithine and cystine.
D. excessive metabolic production of cystine, ornithine and lysine.
E. impaired conversion of cystine to ornithine.

ANSWER=C

Cystinuria is the result of inadequate renal tubular resorption of cystine, ornithine, lysine, andarginine, and is also associated with inadequate intestinal absorption of these amino acids. Stones result from increased concentrations of cystine in the urine which precipitate in acidic urine. The other amino acids do not crystallize to form stones.

9. A 42-year-old infertile man has a semen volume of 2 ml, sperm density of 5 million/ml, and decreased sperm motility. Physical examination demonstrates a grade 3 left varicocele and grade I right varicocele. His partner's evaluation is normal. The next step is:

A. transrectal ultrasonography.
B. clomiphene citrate (Clomid™).
C. intrauterine insemination.
D. left varicocelectomy.
E. bilateral varicocelectomy.

ANSWER=E

Semen parameters improve to a greater extent after bilateral varicocelectomy as compared to just repairing the dominant varicocele in patients with a grade II-III varicocele and a contralateral grade I varicocele. This approach does not extend to patients with a "subclinical" varicocele (those only detected by Doppler ultrasound). Transrectal ultrasonography and clomiphene citrate (Clomid) are not indicated in this setting. Intrauterine insemination is another alternative but varicocelectomy is more cost effective. Intrauterine insemination is not indicated because sperm concentration is too low. Age of the female partner is also an important consideration; if partner is older, in vitro fertilization should be considered as a treatment option.

10. A 14-year-old boy with myelodysplasia and a ventriculo-peritoneal shunt has acute abdominal pain. He underwent a sigmoid bladder augmentation six months ago. His pulse is 100 bpm and BPis 100/70 mmHg. He has diffuse abdominal tenderness. Urine output over the past six hours is 70 ml. Cystogram shows no extravasation. The best management is I.V. hydration, broad spectrum antibiotics, and:

A. abdominal CT scan.
B. CT cystogram.
C. continuous catheter drainage.
D. placement of large-bore (24F), percutaneous suprapubic tube.
E. exploratory laparotomy.

ANSWER=B

It is noteworthy that up to 50% of cystogram studies in cases of a ruptured augmented bladder may be negative for the injury; therefore, a negative cystogram does not rule out a bladder rupture. With this patient having clear clinical signs of acute peritoneal inflammation, the differential diagnosis is cystitis with peritoneal irritation (treated by antibiotic therapy and continuous bladder drainage and not requiring surgery), a loculated infected ventriculoperitoneal shunt (requiring a neurosurgical consultation), or a missed bladder rupture (requiring emergent surgery). Confirmation of suspected perforation of an augmented bladder is best achieved by performing a CT cystogram with a minimum of 300 ml of contrast placed in the bladder with a CT phase taken with the bladder distended and emptied. An abdominal CT without a cystogram may show a significant increase in peritoneal fluid if an infected ventriculoperitoneal shunt is present (false positive for bladder rupture) or, alternatively, a high false negative rate for rupture if a small bladder perforation is present and occluded by either small bowel or omentum. The performance of a CT cystogram with a minimum of 300 ml of contrast has been shown to dislodge the omentum or small bowel that would be plugging the bladder laceration and diagnosis of extravasated contrast is more readily found on the CT evaluation than the plain cystogram. Placement of a large bore suprapubic tube will not sufficiently divert urine or drain infected urine from the peritoneal cavity if a bladder rupture is present. Continuous catheter drainage along with I.V. antibiotics may be of benefit for severe cystitis but should only be pursued after documentation of the absence of a bladder perforation. Exploratory laparotomy would be indicated without a CT cystogram if the patient was clinically unstable and not responsive to fluid resuscitation.

11. A 26-year-old man has bilateral gynecomastia. Testicular examination is normal. Free testosterone is elevated and LH is decreased. The next step is:

A. cranial MRI scan.
B. abdominal CT scan.
C. testicular ultrasound.
D. serum prolactin.
E. serum estradiol.

ANSWER=C

Gynecomastia occurs in the male when there is an alteration of the testosterone-estradiol ratio which may be due to either reduced testosterone or elevated estradiol. The differential diagnosis of gynecomastia in an adult includes prolactin-secreting pituitary tumor, estrogenic drugs, exogenous testosterone, testicular tumors, and idiopathic. The elevated testosterone level with low gonadotropin levels in this patient is most suggestive of either exogenous testosterone or a testicular tumor. Exogenous testosterone will usually result in a reduction in the size and softening of the consistency of the testes. The most likely etiology is a testicular tumor despite his normal testicular physical examination. Leydig cell tumors are one of the more common nonpalpable testicular tumors and with their inherent ability to secret testosterone is the most likely diagnosis. If it had been a prolactin secreting tumor, the LH and the testosterone would be low. The MRI scan is not needed since the pituitary is responding normally and prolactinoma is not suspected. Gynecomastia in these patients is caused by the conversion of excess (unregulated) testosterone to estradiol by aromatase.

12. A 46-year-old man with recurrent calcium nephrolithiasis secondary to hypercalciuria is treated with hydrochlorothiazide. Follow-up evaluation at six months reveals a serum potassium of 3.5mEq/l and new onset of hyperglycemia with a fasting blood sugar of 200 mg/dl. The next step is:

A. hemoglobin A1C.
B. glucose tolerance test.
C. initiate diabetic diet.
D. discontinue hydrochlorothiazide.
E. initiate potassium citrate.

ANSWER=E

Thiazides are frequently used to treat hypercalciuric calcium nephrolithiasis. Following initiation of the thiazides, up to 30% of patients will develop hypokalemia and 3-5% will develop new onset of hyperglycemia. The mechanism traditionally associated with this increased risk of thiazide-associated diabetes mellitus is a reduction in serum potassium. A meta-analysis of 59 studies involving thiazide treatment found a significant correlation between the degree of diuretic-induced hypokalemia and an increase in plasma glucose. The increase in plasma glucose levels are significantly increased if the serum potassium levels fall below 3.5mEq/l The mechanism of this glucose increase is related to the fact that low plasma potassium level impair insulin secretion, thereby increasing plasma glucose. In addition to the hypokalemia induced by hyperglycemia, hydrochlorothiazide can also induce hyperuricemia and hyperlipidemia (hypertriglyceridemia). It is noteworthy that if hyperlipidemia develops, the increase in free fatty acids will cause damage to the pancreatic beta-cells secretion of insulin and will further impair glucose metabolism. There is substantial clinical evidence that prevention of hypokalemia with K+ supplementation (potassium citrate), potassium-sparing agents (triamterene), or with dietary supplements such as a banana per day, either prevents of significantly lessens the degree of glucose intolerance, and, therefore, should be initiated at either the onset of thiazide therapy or upon the discovery of glucose intolerance.

13. The characteristic that distinguishes primary hypoadrenalism from secondary (pituitary) hypoadrenalism is:

A. hypotension.
B. metabolic alkalosis.
C. cutaneous hyperpigmentation.
D. hypernatremia.
E. hypokalemia.

ANSWER=C

Since the amino acids of ACTH are identical to the terminal amino acids of melanocyte stimulating hormone (MSH), over-production of ACTH results in cutaneous hyperpigmentation Adrenal loss results in lack of negative feedback and over-production of ACTH. Pituitary failure, on the other hand, results in a lack of ACTH. Vitiligo may also be seen in these patients. Primary hypoadrenalism (or Addison's disease) is notable for hyponatremia (no hypernatremia) and hyperkalemia (not hypokalemia). Hypotension can be present in primary or secondary hypoadrenalism.

14. A two-year-old girl has a large abdominal mass. Chest and abdominal CT scans show clear lung fields with a 12 cm tumor arising from the center of the right kidney and two 2-3 cm exophytic tumors of the mid- and lower poles of the left kidney. The next step is:

A. initiate chemotherapy.
B. bilateral percutaneous needle biopsy.
C. exploration and bilateral open renal biopsy.
D. right nephrectomy and partial left nephrectomy.
E. bilateral nephrectomy.

ANSWER=A

There is a high probability that this two-year-old girl has bilateral Wilms' tumor. The current Children's Oncology Group Wilms' Tumor protocol recommends six weeks of initial chemotherapy without the need for renal biopsy in patients with highly probable bilateral Wilms' tumor. The response to the chemotherapy is assessed after six weeks of chemotherapy by CT or MRI scans. Imaging at this time will quantify any reduction in tumor volume and allow the surgeon to assess the feasibility of renal sparing surgery. Tumors responding to chemotherapy may receive a second round of medications in an attempt to further reduce the size of the

tumor allowing the surgeon to maximally salvage non-involved renal parenchyma. Tumors not responding to therapy will require bilateral open renal biopsy and lymph node sampling in order to both determine histopathology and guide further treatment. Although right nephrectomy and partial left nephrectomy may eventually be the ultimate outcome for this patient, chemotherapy is the initial step in management with renal preservation the primary goal.

15. During a laparoscopic donor nephrectomy, a 2 cm laceration is made in the splenic flexure of the colon. The most appropriate action is to:

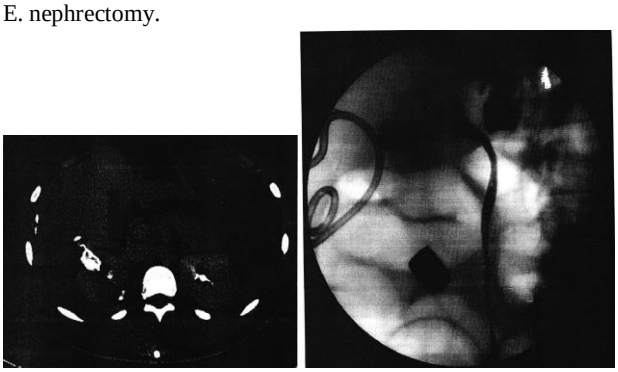
A. abandon the operation.
B. close the laceration, administer broad-spectrum antibiotics to the donor, and continue with the transplantation.
C. close the laceration, irrigate wound with neomycin, and proceed with the transplantation.
D. close the laceration, administer broad-spectrum intravenous antibiotics to the donor and recipient, and proceed with the transplantation.
E. close the laceration, irrigate wound with neomycin, administer broad-spectrum antibiotic to the donor and recipient, and proceed with the transplantation.

ANSWER=A

Infection transmitted from a cadaver donor to an immunocompromised recipient can be rapidly fatal. Gross bacterial contamination of the operative site gives the surgeon only one single safe option which is to abandon the procedure.

16. A 24-year-old man is shot in the right flank and sustains a grade 5 renal injury and extensive liver and bowel injury. During exploration, his liver and bowel injuries are stabilized and a nonpulsatile right retroperitoneal hematoma is identified with no intervention. One week after exploration, he develops increased drainage from a perihepatic drain. Creatinine of the drainage fluid is 8 mg/dl. CT scan and retrograde pyelogram are shown. The next step is:

A. ureteral stent.
B. ureteral stent and urethral catheter.
C. percutaneous nephrostomy.
D. exploration, debridement, and renal repair.
E. nephrectomy.



ANSWER=B

The patient has a delayed urine leak following high velocity penetrating renal trauma. CT scan and retrograde pyelogram reveal a urine leak. The next step is ureteral stent and urethral catheter drainage to prevent reflux of urine retrograde into the stent which may potentiate the leak and result in infection of the retroperitoneal hematoma. Ureteral stent placement may allow for resolution of the leak without operative intervention. The patient's recent history of shattered kidney along with liver and bowel injury placement of a percutaneous nephrostomy tube would result in increased risk for infection of the perinephric hematoma and maybe difficult to place and maintain in the proper position due to the renal injury. Exploration of the right kidney is not indicated at this time.

17. Antenatally diagnosed marked bilateral hydronephrosis is confirmed postnatally in a newborn girl. VCUG is normal. The next step is:

A. magnetic resonance urogram.
B. MAG-3 renal scan.
C. DMSA renal scan.
D. CT urogram.
E. repeat ultrasound in two months.

ANSWER=B

In this setting, one must determine if the hydronephrosis is causing significant obstruction and if so, at what level in the urinary tract. The ultrasound may show ureteral dilation which suggests obstruction at the ureterovesical junction, but the MAG-3 renal scan will determine the differential function and the degree of obstruction. The ideal timing for performing this study is during the second month of life when the GFR has increased several fold. DMSA scan would not provide information regarding degree or level of obstruction. The magnetic resonance urogram may be useful after the first week of life, but does not provide different! renal function. Antegrade studies are not needed at this point and should not be performed prior to the less invasive MAG-3 renal scan. CT urogram does not provide quantitative data and exposes the infant to unnecessary radiation and anesthesia.

18. Reflex bladder and urethral activity are coordinated by a reflex center located in the:

A. sacral cord.
B. thoracic and sacral cord.
C. pons.
D. medulla.
E. basal ganglia.

ANSWER=C

The center for integration and coordination of bladder and urethral activity is in the pons (pontine micturition center). Suprasacral spinal cord injury disrupts the necessar communication between the pontine micturition center and the sacral cord. This results in detrusor overactivity and detrusor external sphincter dyssynergia. Patients with this issue ma have urinary incontinence, incomplete bladder emptying, and their upper tracts may be at risk.

19. Nephrocalcinosis of infancy:

A. should be treated by thiazide diuretics.
B. results in a high incidence of renal calculi in childhood.
C. is associated with distal renal tubular acidosis.
D. may completely disappear after stopping furosemide.
E. should be treated by increased calcium and phosphate in the neonatal diet.

ANSWER=D

Nephrocalcinosis of infancy has been found in up to 64% of low birth weight (< 1500 g) o premature infants (gestational age of 32 weeks or less). Specifically, neonates who require oxygen for greater than four weeks of life, undergo dietary supplementation with high caloric formula (increased calcium and phosphate), and infants receiving loop diuretics are at tin highest risk. The largest risk factor for nephrocalcinosis is in infants who have received loo diuretics (furosemide) to treat fluid overload, improve pulmonary oxygenation, and increase cardiac output. Indeed, 70% of the patients with nephrocalcinosis will have a history of prolonged loop diuretic exposure. The normal hypercalciuric effect of furosemide found in adults is enhanced in infants by the reduced glomerular filtration rate and the decrease hepatic function associated with infancy. The reduction in GFR and decreased systemic clearance of loop diuretics by the liver will significantly prolong the half-life of this drug, resulting in excessive hypercalciuria. In infants with clinically documented nephrocalcinosis, approximately 15% will develop renal calculi by five years of age. The calculi isolated from these patients are composed exclusively of calcium oxalate. The vast

majority of these infants (85%) will completely resolve their nephrocalcinosis following stopping the use of loop diuretics. Although neonatologists will frequently replace the use of loop diuretics by using thiazides for fluid management issues in these critically ill infants, it is noteworthy that resolution of nephrocalcinosis has not been found to be significantly enhanced by the use of thiazides. Treatment of infants diagnosed with nephrocalcinosis should be with stoppage of the loop diuretics and interval follow-up with renal ultrasound until the nephrocalcinosis has resolved or alternatively renal calculi have been documented to develop and necessary treatment has been accomplished. There is no association of nephrocalcinosis of infancy to renal tubular acidosis. Increased dietary calcium and phosphate in the diet routinely found in infant high caloric formula supplements may at times actually be a cause of nephrocalcinosis of infancy and is, therefore, not indicated as treatment.

20. The initial nephrostomy tube puncture site in a horseshoe kidney compared to that in a normally positioned kidney is more:
A. medial and through a posterior calyx.
B. lateral and through an anterior calyx.
C. medial and through an anterior calyx.
D. lateral and through a posterior calyx.
E. inferior and through an anterior calyx.
ANSWER=A
Horseshoe kidneys may develop renal calculi, possibly as a result of high insertion of the ureter and relative stasis of urine. Patients with small, nonobstructing calculi in nondependent locations may be treated with SWL. However, obstructing calculi or those that are large or in dependent locations, are best treated with percutaneous techniques. The initial puncture is more medial than that for normally positioned kidneys and should be placed through a posterior calyx.

21. A newborn boy has a left-sided abdominal mass. Ultrasound reveals an infiltrative mass replacing the lower third of the left kidney. The right kidney appears to have a slightly increased echogenicity, but is otherwise normal. The next step is:
A. bilateral needle biopsy of the kidneys, then chemotherapy.
B. exploratory laparotomy and bilateral biopsy.
C. left nephrectomy followed by chemotherapy.
D. left lower pole partial nephrectomy followed by chemotherapy.
E. left nephrectomy and surveillance.
ANSWER=E
This disease process is most likely a congenital meroblastic nephroma (CMN) and should be distinguished from a Wilms' tumor by the patient's age and the fact that CMN is typically infiltrative on imaging, whereas Wilms' tumors displace and compress renal architecture. CMNs are the most common tumor in infants greater than four months of age, with a median age at the time of diagnosis of three months. In contrast, the median age for diagnosis of a Wilms' tumor is 3.5 years. Two types of mesoblastic nephroma exist, the classic type which is far more common, and, provided surgical margins are negative, rarely recur and the cellular variant. The cellular variant consists of atypical spindle cells with frequent mitotic figures (25- 30/10 hpf) and necrosis and is considered a variant of a fibrosarcoma. This variant is associated with both local recurrence and widespread metastasis. Surveillance by interval six month abdominal ultrasounds for the first two years is usually recommended for the classic variant and more aggressive follow-up with interval CT or MRI scans of the lungs and abdomen are recommended at three to six month intervals for the first two years for the cellular variant. Normal newborn kidneys are slightly echogenic, hence, the right kidney is normal in the boy presented here.

22. The factor most likely to increase the risk of a perirenal hematoma after SWL is:
A. hypertension.
B. stone size >2 cm.
C. > 2,000 shocks.
D. UTI.
E. diabetes mellitus.
ANSWER=A
Preoperative hypertension, especially uncontrolled hypertension, and bilateral application of SWL are risk factors for the development of perirenal bleeding. Patient size or weight, or stone size, location, and number do not correlate with this complication. Clinically significant perirenal hematomas occur in approximately 0.2-0.4 % of patients undergoing SWL. Most such patients can be managed with surveillance, although a third may require transfusion.

23. During transvaginal repair of a high vesicovaginal fistula, a Martius flap is harvested, but is of insufficient length to reach the fistula site. The next step is:
A. myocutaneous gracilis flap.
B. gluteal flap.
C. omental flap.
D. peritoneal flap.
E. myocutaneous labial flap.
ANSWER=D
Uncomplicated vesicovaginal fistulas can be closed using meticulous technique and a multilayer closure. Repair of more complex fistulae often requires the use of well-vascularized tissue flaps positioned between the bladder and vaginal repair sites. The use of Martius (fibrofatty tissue), myocutaneous labial (skin and fibrofatty tissue) or, more rarely, gluteal skin flaps can be used to repair low fistulas. Such flaps may not be of sufficient length to reach high fistulae. Peritoneal flaps can be harvested through the vaginal incision and are in close proximity to such fistulas. Use of peritoneum obviates the morbidity of an abdominal incision (necessary for harvesting the omentum) or an incision along the inner thigh (necessary for harvesting the gracilis muscle).

24. A 26-year-man undergoes orchiectomy for seminoma. Abdominal CT scan and tumor markers are negative. He elects surveillance. The most accurate statement regarding his outcome over the next two years is:
A. similar risk of relapse as patients treated with XRT.
B. 5% risk of visceral relapse.
C. 5% risk of relapse with non-seminomatous elements.
D. 15% risk of retroperitoneal relapse.
E. 15% risk of pulmonary relapse.
ANSWER=D
The standard of care for decades in a patient with clinical stage I seminoma (negative CT scan and negative tumor markers) was retroperitoneal XRT. In patients receiving XRT for stage I seminoma, the risk of overall relapse is 5% or less and it would be extremely uncommon for such a patient to relapse with nonseminomatous elements. The major concern regarding the routine use of XRT in these patients was the risk of secondary malignancy, usually leukemias and lymphomas found in approximately 18% of patients 25 years after radiation therapy. To reduce the risk of secondary malignancy, surveillance may be a reasonable option. In a patient with stage one seminoma, there is an approximately 15% risk of relapse of the tumor to retroperitoneal lymph nodes; almost all are salvaged provided they were reliable candidates for serial surveillance and were not lost to follow-up. Visceral and pulmonary relapse of seminoma or alteration to non-seminomatous elements is extremely uncommon in patients with stage Iseminoma. Single agent carboplatin is the other option in place of either XRT or observation for clinical stage I seminoma and is associated with a 3-5% relapse rate in reported series.

25. A five-year-old boy has a two-week history of severe daytime urinary frequency. There is no history of UTI and urinalysis is negative. Physical and neurological examination are normal. The next step is voiding diary and:

A. reassurance.
B. oxybutynin.
C. tamsulosin.
D. ultrasound.
E. VCUG.

ANSWER=A

This is a typical presentation of pediatric benign urinary frequency syndrome and is best managed expectantly. Reassurance is all that is necessary with the expectation that the symptoms will resolve in one to three months. It is important to confirm that both the physical examination and urinalysis are normal with no evidence of neurologic abnormalities such as a spinal dimple or lower extremity weakness or UTIs. In most instances, pharmacological therapy and invasive investigation or therapy have proven to be unsuccessful and may actually worsen symptoms. In almost all cases, these symptoms resolve spontaneously within a few months and the family should be reassured.

26. A 74-year-old man with a Studer ileal neobladder develops invasive urothelial carcinoma of the proximal urethra three years post-cystectomy. A metastatic evaluation is negative. The next step is:

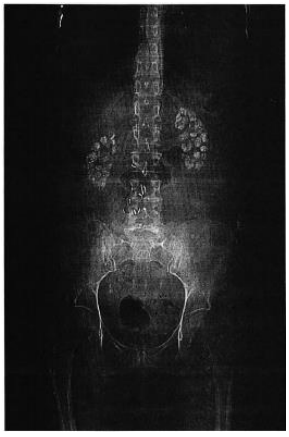
A. BCG instillation in the urethra and neobladder.
B. urethrectomy and transverse colon loop construction.
C. urethral laser fulguration.
D. urethrectomy and continent cutaneous diversion.
E. urethrectomy and use afferent limb for cutaneous diversion.

ANSWER=E

Urethral recurrence after neobladder is an uncommon but troublesome complication best treated with urethrectomy and some form of urinary diversion. The Studer neobladder affords a reasonable solution to this problem since the non-intussuscepted afferent limb may be detached from the neobladder and converted to a standard ileal loop. A transverse colonconduit would require ureteral reimplantation and continent cutaneous diversion and while an option, would have a greater complication rate in an older and previously operated upon patient. Local therapies, such as BCG and laser figuration, are inadequate for this invasive tumor.

27. A 23-year-old woman has dull, persistent, bilateral flank pain. A scout CT image without contrast is shown. Serum calcium is 9.4 mg/dl and urine calcium on an unrestricted diet is 300 mg/day (normal < 250 mg/day). Urine culture is negative. The next step is:

A. observation.
B. thiazides.
C. potassium citrate.
D. percutaneous nephrolithotomy.
E. parathyroidectomy.



ANSWER=B

The radiograph demonstrates the typical "bunches of grapes" or "bouquet of flowers" appearance of medullary sponge kidney. The characteristic anatomic feature of medullary sponge kidney is dilation of the distal portion of the collecting ducts associated with numerous cysts and diverticula. If symptomatic, most patients (60%) present with flank pain, followed by UTI (25%) and gross hematuria (15%). For patients with renal lithiasis and hypercalciuria, thiazides should be administered as they arrest stone growth and prevent new stone formation. Parathyroidectomy is not indicated in this patient with normal serum calcium and no measurement of serum parathormone. In the absence of an obstructing stone, PCNL is not indicated.

28. A 16-year-old phenotypic girl undergoes evaluation for primary amenorrhea. Testes are found on laparoscopic examination. Karyotype is 46 XY. If the gonads are not removed, the tumor most likely to develop is:

A. seminoma.
B. Leydig cell tumor.
C. gonadoblastoma.
D. embryonal cell carcinoma.
E. teratoma.

ANSWER=A

The syndrome of complete androgen insensitivity (CAIS), previously known as testicular feminization syndrome, is due to absence of a functional androgen receptor. All affected individuals will have a 46 XY genotype and approximately 80% will have "normal" appearing external female genitalia. These patients currently present by one of five different means: fetal karyotype (46 XY) incongruent with newborn infant's phenotype (5% of patients), relative or family member with CAIS with patient diagnosed due to recommendation for genetic screening (15% of patients), ambiguous genitalia at birth, i.e., female phenotype with palpable gonads or mild to moderate clitorimegaly (20% of patients), primary amenorrhea (30% of patients), and testicle found within a inguinal hernia at the time of surgical repair (30% of patients). Patients with complete androgen insensitivity syndrome will have a substantial increased risk of developing a testicular seminoma and if the testis is left in situ, approximately 20% of the patients will have developed a testicular malignancy by the age of 30. Removal of the testicles are, therefore, strongly recommended either prior to or immediately following pubescence. Gonadoblastoma is a tumor that is associated with disorders of sex development. Specifically, it is found in infants noted to have partial or pure gonadal dysgenesis (46 XY or 46 XYIXO genotypes) and is not associated with complete androgen insensitivity syndrome. Individuals with complete androgen insensitivity syndrome are at no higher risk of Leydig cell tumors, embryonal cell carcinoma, and teratomas than the normal population.

29. A 36-year-old man with ejaculatory duct obstruction and a left varicocele has persistent azoospermia despite normalization of ejaculatory volume following TUR of the ejaculatory duct. The next step is:

A. TRUS.
B. repeat TUR of the ejaculatory duct.
C. scrotal exploration and testis biopsy.
D. varicocelectomy.
E. donor insemination.

ANSWER=C

Persistent azoospermia following resection of the ejaculatory ducts may be due to persistent obstruction, concomitant epididymal obstruction, or testicular failure. The restoration of normal ejaculate volume rules out persistent ejaculatory duct obstruction, therefore, neither a repeat TUR-ejaculatory duct nor a TRUS is indicated. Scrotal exploration is necessary to differentiate between epididymal obstruction and testicular failure. Donor insemination is not

necessary with obstructive azoospermia unless the obstruction is uncorrectable and the couple refuses ICSI.Varicocelectomy may be indicated in some instances of non-obstructive azoospermia but it is not helpful with obstructive azoospermia.

30. A 17-month-old boy has a firm, smooth testicular mass. Testicular ultrasound shows a 2 cm upper pole intratesticular cyst with preservation of the parenchyma. Tumor markers are negative. The next step is:

A. transscrotal enucleation.
B. radical inguinal orchiectomy.
C. inguinal exploration with cyst enucleation.
D. cyst aspiration for cytology.
E. simple orchiectomy with placement of prosthesis.

ANSWER=C

The differential diagnosis of cystic testicular lesions includes: epidermoid cyst, dermoid cyst, prepubertal teratoma, juvenile granulosa cell tumor, cystic dysplasia of the rete testis, lymphangioma, simple cyst, and cyst degeneration after torsion. The patient's age, physical examination, and ultrasound findings suggest an epidermoid cyst or simple cyst. Since these lesions are clinically indistinguishable from neoplasms, preoperative tumor markers should be drawn. In this age group, if preoperative tumor markers are negative and a benign lesion is suspected on imaging, testicular sparing surgery via an inguinal incision with the use of frozen section histopathology for confirmation, should be attempted when possible. Cyst aspiration for cytopathology is neither diagnostic nor indicated, and worst, would upstage a malignant tumor and potentially seed the needle tract. Placement of a prosthesis is usually delayed until adolescence when an appropriate size prosthesis can be used, as well as involve the adolescent or young adult patient in preoperative discussion as to their desire for a prosthesis.

31. A three-year-old boy has a 48-hour history of abdominal pain, fever, vomiting, bloody diarrhea, hematuria, and oliguria. Physical examination reveals mild peripheral edema. Laboratory evaluation demonstrates hemoglobin of 5 g/dl, thrombocytopenia, and serum creatinine of 3.2 mg/dl. The most likely etiology is infection caused by:

A. streptococcus.
B. E. coli.
C. cytomegalovirus.
D. Clostridium difficile.
E. hepatitis C virus.

ANSWER=B

This patient has hemolytic uremic syndrome. This is most frequently due to E. coli infection, 70% due to the 0157:H7 serotype. In recent years, many large outbreaks have occurred due to eating uncooked hamburger meat, cheese made from unpasteurized dairy products, and unpasteurized apple cider. With aggressive management of the acute renal failure, the majority of patients will recover normal renal function. The presentation is classic, with a prodrome of enterocolitis with bloody diarrhea, fever, gross hematuria, and oliguric renal failure. Treatment is supportive. Although hemolytic uremic syndrome classically arises following an E. coli enterocolitis, it can develop as a consequence of streptococcus pneumonia, post-bone marrow transplant, and Vitamin B12 metabolic disorders.

32. A 35-year-old man has persistent retroperitoneal lymphadenopathy after platin-based chemotherapy for NSGCT. The parameter most predictive of finding only fibrosis in the retroperitoneum is:

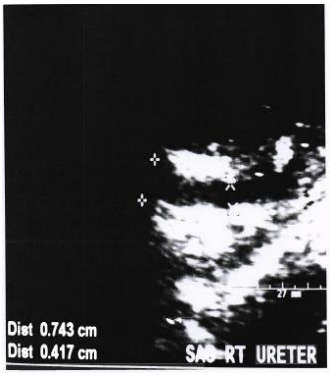
A. pre-chemotherapy lymph node size.
B. 75% reduction in size of the mass on CT scan.
C. pure embryonal cell carcinoma in the primary tumor.
D. pre-chemotherapy marker levels.
E. teratoma in the primary tumor.

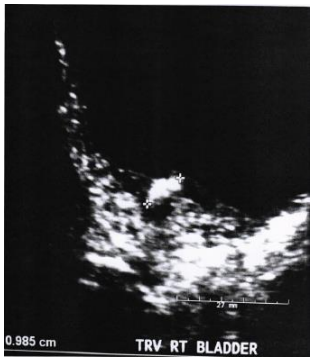
ANSWER=C

Patients with fibrosis/necrosis, only in the post-chemotherapy specimens, have a favorable prognosis with relapse rates of 10% or less in most series. Investigators have sought to identify factors that reliably predict for a high probability of fibrosis/necrosis in a postchemotherapy residual mass. The absence of teratoma in the primary tumor, the percentage reduction in the retroperitoneal mass with chemotherapy (usually cited as 90% or greater), and the size of the post-chemotherapy residual mass have consistently been identified as predictors of fibrosis/necrosis in the post-chemotherapy specimens. In this question, pure embryonal carcinoma would be the best predictor of fibrosis only in the retroperitoneum. Neither pre-chemotherapy lymph node size nor pre-chemotherapy serum tumor marker levels are predictive for fibrosis and the percent reduction has been cited as 90% or greater to predict fibrosis. The absence of teratoma in the primary would predict for fibrosis, not the presence of teratoma.

33. A ten-year-old boy with acute lymphoblastic leukemia has right flank pain, nausea, and vomiting after chemotherapy. Urinalysis shows pH 5.5, 10-20 RBC/hpf, and 5-10 WBC/hpf, platelet count is 50,000/cu mm, and WBC is 3,500/cu mm. Ultrasound images are shown. The next step is:

A. observation and antibiotics.
B. urine alkalinization.
C. SWL.
D. percutaneous nephrostomy.
E. ureteral stent.





ANSWER=E

This child has an obstructing lower ureteral calculus. His immune status is depressed due to his recent chemotherapy, including a low platelet and WBC count. He is symptomatic and requires decompression of his kidney before he becomes septic. Considering his hematologic state, the best option is ureteral stent placement. Although observation, antibiotics, and/or alkalinization with a distal uric acid stone may be appropriate in an asymptomatic patient, in this scenario, immediate decompression is necessary. Ureteral stent is a better option than percutaneous nephrostomy due to the thrombocytopenia. SWL is not appropriate for a distal ureteral stone in a child.

34. A 42-year-old man had a right radical nephrectomy two years ago for a stage PT3ANOMX RCC. He now has right hip pain. Bone scan shows intense uptake in the right hip area and

plain films of the right femur show a 3.5 cm lytic lesion. The next step is:
A. external beam radiation to the femur.
B. strontium-89.
C. internal fixation of the femur.
D. pain management.
E. systemic targeted therapy.
ANSWER=C
Approximately 50% of patients with multi-organ metastases from RCC exhibit evidence of skeletal involvement. It has been estimated that between 15% and 30% of such skeletal lesions are solitary. Eighty percent of skeletal metastases occur in the axial skeleton, thoracic/lumbar spine, and pelvis. When long bones are involved, only the proximal portions are characteristic targets for metastatic disease. Surgical treatment of bony metastases is indicated for weight-bearing bones with lytic lesions > 3 cm. Internal stabilization or replacement of the destroyed periarticular segment often results in significant pain relief and tremendously improves the patient's quality of life. For a lesion this large, XRT or strontium are likely to be ineffective. This patient needs surgery to prevent fracture as a priority over systematic treatments or pain management alone.

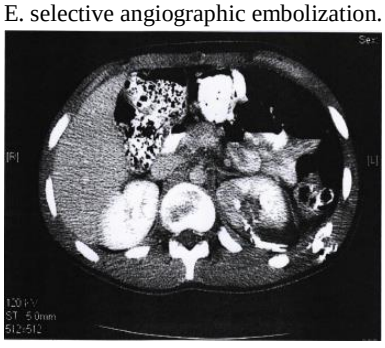
35. A three-year-old boy with thoracolumbar myelomeningocele has diurnal and nocturnal urinary incontinence. Renal ultrasound is normal and VCUG shows no VUR. Urodynamic study reveals total fill noncompliance with end-fill detrusor pressures of 50 cm H20 at 150 ml. In addition to the poor compliance, there is intermittent detrusor overactivity beginning at 50 ml, with intermittent urge incontinence noted to be associated with the overactivity. Tonic external sphincter activity is noted with the leakage. The next step is:
A. timed voiding.
B. antimuscarinics.
C. antimuscarinics and CIC.
D. onabotylinumtoxinA to the external urinary sphincter.
E. onabotylinumtoxinA into the detrusor muscle and CIC.
ANSWER=C
This boy has findings consistent with a neurogenic bladder associated with high storage pressures, detrusor overactivity, and tonic sphincter activity. In this scenario, if the physician is seeking to gain both urinary continence and provide safe storage pressures, treatment of the detrusor to improve compliance, decrease overactivity, and CIC to empty the bladder must be the mainstay of treatment. Injection of onabotylinumtoxinA into the external urinary sphincter would decrease detrusor LPP but would not aid in urinary continence. Although the combination of onabotylinumtoxinA into the detrusor and CIC would work, this would require general anesthesia to accomplish in a pediatric-aged patient and should not be pursued unless the patient has failed more conservative measures such as oral antimuscarinics and CIC. Enterocystoplasty could be considered as an option if medical therapy fails.

36. During laparoscopic left radical nephrectomy, judicious placement of clips on the primary branches of the main renal vein is most important to facilitate:
A. lymphadenectomy.
B. en bloc excision with negative margins.
C. adrenalectomy.
D. application of the endovascular stapler onto the main renal vein.
E. dissection and occlusion of the main renal artery(ies).
ANSWER=D
Excessive placement of clips when managing the gonadal, adrenal, or lumbar branches can severely restrict the working space available for safe placement of the endovascular staple later in the case when the main renal vein is addressed. Application of the stapler across a clip can lead to intraoperative or postoperative hemorrhage and must be avoided. Use of clips should have no effect on the ability to perform the lymphadenectomy, adrenalectomy, or the ability to achieve negative margins, or ability to control renal artery.

37. During laparoscopic live donor nephrectomy, the kidney becomes visibly pale with loss of turgor after 15 minutes of hilar dissection. The next step is:
A. reduce insufflation pressure.
B. fluid bolus.
C. intraarterial papaverine.
D. systemic heparin.
E. convert to open nephrectomy.
ANSWER=A
Renal artery vasospasm may occur during renal hilar dissection, leading to reduced renal perfusion. The first step should be to simply reduce the insufflation pressure. This maneuver will allow improved renal perfusion and no additional steps are necessary in the majority of patients. If renal perfusion continued to be suboptimal, topical papaverine applied to the renal hilar vessels would be the next step. A fluid bolus in the presence of increased intraperitoneal pressure from the pneumoperitoneum is usually of little to no benefit. There is no role for systemic heparinization in this patient.

38. A 54-year-old man with prostate cancer has skeletal metastases. Three months after beginning LH-RH agonist therapy, his PSA is undetectable. The likelihood of developing further bone pathology is best reduced with:
A. enzalutamide.
B. abiraterone.
C. bicalutamide.
D. estramustine.
E. denosumab.
ANSWER=E
Use of denosumab or bisphosphonate therapy in men with prostate cancer has demonstrated two outcomes: prevention of osteoporosis and reduction of skeletal-related events. Denosumab and zoledronic acid both reduce analgesic use and the time to a skeletal event compared to placebo in this setting. However, these changes do not influence survival. None of the other listed agents will prevent bone events. The use of other agents such as enzalutamide or abiraterone have been shown to increase progression-free survival after the development of castrate resistant prostate cancer, but their immediate use in the hormone-sensitive setting is unknown. Estramustine can be associated with thromboembolic events and should not be used in this setting.

39. Following a snowboarding accident, a 13-year-old girl has gross hematuria and a renal injury. Eight days later, she has a persistent ileus and a low-grade fever. CT scan is shown. The next step is:
A. urethral catheter placement.
B. ureteral stent and urethral catheter placement.
C. percutaneous nephrostomy.
D. percutaneous drain placement.
E. selective angiographic embolization.



ANSWER=B
The CT image demonstrates a grade 4 renal laceration with extravasation of urine into a perinephric hematoma. The patient's

symptoms of a low-grade fever and ileus are consistent with peritoneal irritation from the perinephric urinoma and treatment is indicated. Options for management would be retrograde stent placement, with or without concurrent urethral catheter drainage, percutaneous nephrostomy or percutaneous drain placement. Retrograde stent placement provides the patient with a faster return to ambulation and normal activities with less concern for infection of the perinephric hematoma by the percutaneous tract. The disadvantage of placing a ureteral stent in children is the need for anesthesia for placement and removal and the small size of the ureteral stent. Specifically, if there is a large amount of blood clot in the renal pelvis, the clot may occlude the small ureteral stent with persistent extravasation of urine into the urinoma. In this radiograph, there is no evidence of significant blood clot within the renal pelvis and the urinoma is small in size, therefore, percutaneous nephrostomy or drain placement is not indicated. There is no significant hematoma present and, therefore, no need for selective angiographic embolization. The best treatment is with ureteral stent placement with concurrent drainage of the bladder via a urethral catheter to prevent free reflux up the stent from causing persistent symptoms. Once the ileus has resolved, the urethral catheter can be removed. Use of a urethral catheter alone would not be sufficient to treat the urinoma.

40. A 52-year-old man with erectile dysfunction has a penile curvature less than 30° that developed spontaneously 18 months ago and is unresponsive to oral Vitamin E. Doppler ultrasound reveals normal bilateral cavernous arterial flow, mild venous leak, and dorsal penile plaque. The next step is:

A. oral PDE-5 inhibitor.
B. intracavernous pharmacotherapy.
C. corporal plication.
D. plaque incision and grafting.
E. penile prosthesis surgery.
ANSWER=A

The clinical picture is consistent with Peyronie's disease. While the criteria for surgery includes the presence of stable and mature disease of at least a 12-month interval from its onset, surgical correction is not clearly warranted in this situation given the minimal degree (< 30 degrees) of penile angulation that may not preclude sexual intercourse. Penile prosthesis is not indicated in this patient due to the fact that he has adequate penile blood flow and minimal degree of penile curvature. Initial therapy may be best directed to improving erectile function using non-invasive oral pharmacotherapy such as PDE-5 therapy. Intracavernous pharmacotherapy is not recommended since it may exacerbate penile scarring.

41. A 25-year-old man undergoes a radical orchiectomy for a T2, predominantly embryonal cell carcinoma. Pathology reveals a 3 cm embryonal cell carcinoma with involvement of the rete testis and lymphovascular invasion. Serum markers and a chest and abdominal CT scan are normal. His semen analysis was normal. The treatment that offers the best chance for natural fertility on a long-term basis is:

A. XRT.
B. surveillance.
C. modified RPLND.
D. single dose carboplatin.
E. two cycles BEP.
ANSWER=C

The presence of rete testis involvement is associated with approximately a 20-25% incidence of tumor relapse and lymphovascular invasion with approximately a 50% incidence of relapse of his tumor to his retroperitoneal lymph nodes. Placement of this patient on an observation protocol would suggest, at minimum, a 50% risk for the need for salvage chemotherapy. If he is observed and recurs, he will require chemotherapy which will have an adverse effect on his fertility. Chemotherapy, even if administered in low doses, can result in a permanent adverse effect on fertility in approximately 30% of patients. In contrast, fertility is preserved in 80% -90 of patients treated with a modified RPLND or nerve-sparing dissection, Even if he retroperitoneal lymph node involvement found on pathologic assessment of his lymph nodes RPLND is curative in two-third of these patients and chemotherapy can be avoided. TM controversy regarding whether or not to proceed with modified RPLND is based upon the fad that approximately 50% of the patients would undergo needless surgery. Radiation therapy and carboplatin are not indicated in NSGCT.

42. The cause of low urine pH in uric acid stone formers with type Il diabetes mellitus is:

A. glucosuria.
B. type IV RTA.
C. defective renal ammonia excretion.
D. ketone body excretion.
E. recurrent UTIS.
ANSWER=C

Uric acid stones are found in 34% of stone-forming patients with diabetes mellitus compared to 6% of non-diabetic stone formers. In essence, diabetic stone formers are approximately six-fold more likely to develop a uric acid stone. Accordingly, diabetic stone formers have a lower urine pH compared with non-diabetic stone formers. The etiology of low urine pH in diabetic uric acid stone formers is believed to be due to insulin resistance. In normal individuals, insulin stimulates ammoniagenesis in renal tubule cells by promoting gluconeogenesis from glutamine and by stimulating ammonium excretion by the proximal tubular sodium/hydrogen exchanger. In obese patients with insulin resistance as seen in metabolic syndrome, failure of the renal tubule cells to respond to insulin results in defective ammonia production and/or excretion thereby leading to a reduction in urinary pH and uric acid stone formation.

43. A 65-year-old man is treated with goserelin acetate and bicalutamide for a risingserum PSA following definitive XRT for Gleason 8 prostate cancer. Bone scan and CT scan are negative. In addition to the hormone therapy, he should have annual bone density scans and:

A. observation.
B. monthly zoledronate (Zometa).
C. weekly alendronate (Fosamax).
D. calcium and Vitamin D.
E. denosumab.
ANSWER=D

Osteoporosis is a recognized risk of long-term androgen ablation and has been shown to have significant clinical impact. Men started on LH-RH agonists should receive annual bone density scans and regular calcium and Vitamin D supplements. Treatment of osteoporosis, if it develops, may be done with bisphosphonates, but the ideal type of therapy is not proven. Prophylactic monthly zoledronate (ZometaR) or denosumab are cost prohibitive agents that have been shown to prevent bone-related events only in men with documented bony metastases.

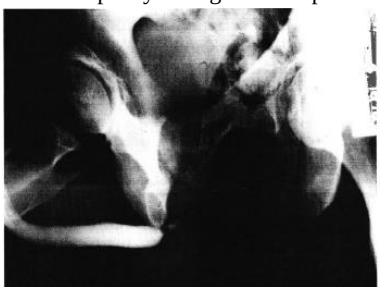
44. Bladder relaxation during filling is accomplished by:

A. stimulation of beta-3 adrenergic receptors via the hypogastric nerve.
B. stimulation of alpha-1 d receptors via the hypogastric nerve.
C. stimulation of alpha-1 a receptors via the hypogastric nerve.
D. inhibition of sympathetic input from the spinal cord.
E. inhibition of nicotinic receptors via the pelvic nerve.
ANSWER=A

The accommodation of the bladder to increasing volumes of urine is primarily a passive phenomenon dependent on the intrinsic properties of the vesical smooth muscle and the quiescence of the parasympathetic efferent pathway. Stimulation of alpha-receptors do not initiate bladder relaxation. Stimulation of beta-2 and beta-3 adrenergic receptors in the detrusor muscle results in the direct relaxation of the detrusor smooth muscle. Mirabegron, a beta-3 agonist, takes advantage of this pathway to improve symptoms of overactive bladder.

45. A 32-year-old man has a weak urinary stream and recurrent UTIS. He has a known urethral stricture and has undergone three dilations in the past. Retrograde urethrography is shown. The next step is:

A. cystoscopy.
B. urethral ultrasound.
C. VCUG.
D. excision and primary anastomosis.
E. urethroplasty with graft or flap.



ANSWER=C

The retrograde urethrogram (RGUG) provided in the image is an incomplete study. Two major problems exist with this image. First, the patient is not tipped far enough laterally; this can be identified by the visible obturator ring. If either or both of the obturator rings are visible, a distortion of the urethra is produced due to an improper pelvic angle and the length of the stricture will appear shorter than it actually is. Second, not enough contrast passed through the stricture to delineate its proximal extent. A repeat RGUG would most likely not reveal any additional information. A voiding urethrogram would provide an antegrade study that will allow the physician to determine the proximal extent of the urethral stricture. To perform this study, the urologist may need to pass a glide wire through the stricture followed by a 6 Fr ureteral catheter. This will allow the bladder to be filled with contrast and not dilate or destroy the stricture. The patient is subsequently asked to void and the proximal location of the stricture identified. If you can combine the VCUG with a simultaneous RGUG, a so-called up and downogram can be obtained that will delineate the length of the stricture. Cystoscopy or urethral ultrasound would not add additional information as to the extent of the stricture. Urethral ultrasound has been shown to determine the degree of spongiofibrosis yet would not add additional information over an antegrade study regarding the length of the stricture. Urethroplasty with incomplete staging information should not be performed in order to prevent unnecessary buccal mucosa harvest, and/or added operative time in the lithotomy position while a graft is unexpectedly harvested.

46. Renal medullary carcinoma is characterized by:

A. occurrence predominately in the left kidney.
B. relatively indolent clinical course.
C. good response to cisplatin-based chemotherapy.
D. typically amenable to partial nephrectomy.
E. metastatic disease at presentation.

ANSWER=E

Renal medullary carcinoma was first described in 1995 and, to date, less than 100 cases have been reported in the literature. It is an extremely aggressive disease with nearly all patients presenting with metastatic disease. Mean survival is less than six months and only two longterm survivors are reported in the literature. It has not been shown to respond to standard chemotherapy and/or immunotherapy regimens. Interestingly, approximately three-fourths of cases have been reported to involve the right kidney. Recent studies have reported amplification of the ABL gene and increased expression of ABL protein in the absence of BCRABL translocation characteristic of chronic myeloid leukemia. Medullary carcinoma is more common in patients with sickle cell trait. It tends to be central and infiltrative.

47. A 48-year-old man undergoes partial nephrectomy for a 3 cm renal mass. His flank drain is removed on the third postoperative day. Seven days later, he has clear fluid dripping from the flank drain site. He is otherwise asymptomatic. CT scan demonstrates a 5 cm by 10 cm fluid collection adjacent to the kidney with extravasation of contrast from the collecting system. The next step is:

A. observation.
B. urethral catheter.
C. percutaneous drainage of fluid collection.
D. percutaneous nephrostomy.
E. ureteral stent.

ANSWER=C

Urine leak following partial nephrectomy occurs in up to 15% of cases. Provided a postoperative drain is left in situ, spontaneous closure of the urinary leak occurs within two to four weeks. In the case of an unrecognized or delayed urinary leak, the presence of an adjacent urinoma will prevent fistula closure and predispose the patient to infection/abscess formation. Percutaneous drainage of the urinoma is the preferred method used to control an unrecognized or delayed pyelocutaneous fistula. If the leak does not heal with drainage of the urinoma, consideration should be given to the possibility of either ureteral/bladder obstruction or bladder dysfunction as a cause of the persistent fistula. In these situations, a cystoscopy with a retrograde pyelogram followed by ureteral stent and urethral catheter placement should be pursued. The concomitant urethral catheter is used to aid healing by preventing high pressure reflux up the ureteral stent and/or to treat bladder outlet obstruction or voiding dysfunction as an etiology for the persistent urinary fistula.

48. For dosimetry planning for brachytherapy, the most accurate method to estimate prostate volume by ultrasound is based on:

A. planimetry.
B. a sphere.
C. an ellipse.
D. a prolate ellipse.
E. a prolate sphere.

ANSWER=A

Unfortunately, no prostate is the perfect sphere, ellipse, or prolate sphere, rendering calculations somewhat inaccurate. The most accurate means of volume measurement by ultrasound is planimetry, which allows for variation in shape. In this, the probe is mounted on a stepping device and the signal marched through the gland at defined intervals, usually 3-5 mm. At each interval, the surface area of the prostate image is obtained. Volume is calculated by multiplying the sum of the surface areas by the stepping interval. While a prolate ellipsoid is the calculation typically used in TRUS of the prostate, it is not as accurate as planimetry. Because of its superior accuracy, planimetry is the method of choice for brachytherapy treatment planning.

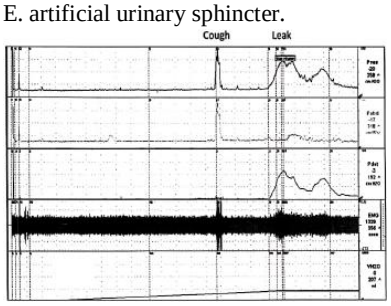
49. A 61-year-old man has a T1c, Gleason 7 prostate cancer with a PSA of 9.1 ng/ml. He has moderate LUTS and prostate volume of 42 ml. Before any treatment decisions are made, he should undergo:

A. CT scan of abdomen and pelvis.

B. bone scan.
C. urodynamics.
D. assessment of life expectancy.
E. molecular testing.
ANSWER=D
This patient has intermediate-risk, clinically localized prostate cancer. According to the AUA Guidelines for the management of clinically localized prostate cancer, as a standard, an assessment of the patient's life expectancy, overall health status, and tumor characteristics should be performed prior to making any treatment decisions. Life expectancy, not patient age, is a major factor to consider in treatment selection. When life expectancy is long, localized prostate cancer can be a cause of morbidity and mortality. On the other hand, when life expectancy is relatively short, competing causes for mortality reduce the chance that a man will experience disease progression or die from prostate cancer. Imaging studies, including CT scan, bone scan, and ProstaScintR scans are generally not indicated in the pretreatment evaluation of patients with clinically localized disease. This is especially true in patients with low and intermediate risk disease because the yield is so low to preclude their usefulness. Urodynamics are not indicated. The role of molecular testing in this setting remains uncertain.

50. In a man who has good daytime continence following radical cystectomy and orthotopic neobladder, nocturnal incontinence is due to:
A. damage to the urinary rhabdosphincter.
B. neobladder hypercontractility.
C. inadequate compliance of the neobladder.
D. loss of afferent input from the detrusor to the central nervous system.
E. damage to the inferior hypogastric nerve plexus.
ANSWER=D
Isolated nocturnal incontinence is commonly noted in patients who have undergone radical cystectomy and orthotopic neobladder. This is thought to be related to loss of afferent input from the detrusor to the central nervous system. Normally, the afferent input causes a reflex rise in urethral pressure during reservoir filling. This reflex is maintained following radical prostatectomy which explains why isolated nocturnal incontinence is uncommon after this procedure. If there was damage to the rhabdosphincter, the patient would experiend incontinence during the day and night, as opposed to isolated nocturnal incontinence. Th would also be the case if the neobladder had poor compliance or had contractions. Wh| some authors have suggested that damage to the pelvic and hypogastric plexus contributes i incontinence after cystectomy, this also would not cause isolated nighttime incontinence.

51. A 24-year-old man with a T4 complete spinal cord injury has urinary incontinence despite CIC and maximal anticholinergic therapy. His urodynamic study is shown. He would like to be dry. He was injected with 300 units of onabotulinumtoxinA for lower extremity spasticity one month ago. The next step is:
A. increase frequency of catheterization.
B. immediate injection of 200 units onabotulinumtoxinA.
C. injection of 200 units onabotulinumtoxinA in two months.
D. sacral neuromodulation.
E. artificial urinary sphincter.



ANSWER=C
The urodynamic study is consistent with detrusor overactivity. This patient has failed medical therapy so the next option, if he would like to improve his continence, would be bladder augmentation or onabotulinumtoxinA. Pelvic floor physical therapy would not be helpful in a patient with a complete spinal cord injury. Sacral nerve stimulation does not have an FDA indication for the treatment of neurogenic bladder. Artificial urinary sphincter would be indicated for stress urinary incontinence which would be unlikely with this level of injury and was not demonstrated on the urodynamic study. Doses of onabotulinumtoxinA should not exceed 360 units every 12 weeks. Since this patient was injected for his spasticity last month he would be best treated in two months and not immediately. In addition, further treatment of both his detrusor overactivity and lower extremity spasticity with onabotulinumtoxinA should be coordinated between his urologist and physiatrist to eliminate the potential for over dosage over a period of time. Regarding the treatment of neurogenic bladder with onabotulinumtoxinA 200 units is an efficacious starting point with the dose increased to 300 units for refractory cases. Studies comparing injections of onabotylinumtoxinA into the detrusor only, compared to a combined injection, with two-thirds of the volume injected into the detrusor and one-third of the volume injected into the trigonal areas, have found that the combination injection had better relief of symptoms, improved compliance, and no increased risk of vesicoureteral reflux compared to detrusor-only injections.

52. A 43-year-old man has a 4 cm micropapillary urothelial carcinoma that extensively invades the lamina propria near the bladder dome. Muscularis propria is present and uninvolved. The next step is:
A. restaging TURBT.
B. partial cystectomy.
C. neoadjuvant chemotherapy followed by radical cystectomy.
D. radical cystectomy.
E. chemotherapy.
ANSWER=D
T1 tumors with aggressive features (tumor size > 3 cm, micropapillary histology, and lymphovascular invasion) have an increased risk of progression and should undergo definitive cystectomy that is highly effective for early stage tumors. While intravesical BCG is an option for the treatment of T1 bladder cancer, the high-risk features of this tumor leave the patient at a very high risk of relapse and progression. This is inappropriate given his young age and excellent health. Partial cystectomy is not the best choice for tumor control given the high risk of multifocal recurrences within the remaining bladder. Prophylactic radiotherapy and systemic chemotherapy have not been shown to reduce the risk of recurrence in individuals with T1 disease. Micropapillary urothelial carcinoma is unlikely to respond to intravesical therapies. The use of neoadjuvant chemotherapy in non-muscle invasive disease is unproven, so immediate cystectomy is most appropriate.

53. Three years after radical cystectomy and orthotopic ileal neobladder, a 61-year-old man has chronic and severe diarrhea. The next step is:
A. fluid restriction.
B. Metamucil.
C. loperamide.
D. Vitamin B12 replacement.
E. cholestyramine.
ANSWER=E
The etiology of diarrhea following urinary diversion is related to the type and amount of bowel used in the diversion. Many patients initially suffer from diarrhea after the procedure, but this usually resolves during the postoperative period. A small number of patients suffer chronic and bothersome diarrhea that necessitates treatment. In the case of diversions that require ileal resection of > 40 cm but <

100 cm, the diarrhea is thought to be due to decreased ileal bile salt absorption that leads to increased bile salt delivery to the colon. This in turn leads to colonic irritation and increased bicarbonate and water secretion. This is effectively a secretory diarrhea. The initial treatment should be decreased fat intake and initiation of cholestyramine. In contrast, diversions in which the ileocecal valve or colon is resected result in decreased bowel transit time and an osmotic diarrhea. This is best treated with oral bulking agents and loperamide. Vitamin B12 replacement is usually indicated in patients who have had significant portions of terminal ileum removed, but this will not impact the diarrhea. Fluid restriction is not advisable in the setting of a urinary diversion.

54. A 65-year-old woman undergoes ureteroscopic biopsy and laser ablation of a single right mid-ureteral tumor. Histology reveals a low-grade Ta urothelial carcinoma. The next step is:
A. CT urogram and urine cytology.
B. quarterly upper tract surveillance, urine cytology, and cystoscopy.
C. ureteral stent placement and BCG instillation.
D. nephrostomy and antegrade administration of BCG.
E. partial ureterectomy and Boari flap.
ANSWER=B
The management of upper tract urothelial carcinoma has changed significantly in the past decade as endoscopic technologies have improved. Many of these tumors, which previously would have been managed by open surgical excision, can now be safely managed with endoscopic ablation. Patients with low volume, low grade, and low stage disease can be safely managed with minimally invasive techniques. Other factors that should lead to strong consideration of minimally invasive management include renal insufficiency or other abnormalities. In this case, the patient has a single non-invasive, low grade tumor which favors a minimally invasive nephron-sparing approach. While ureterectomy would spare the involved kidney, it is a major surgical procedure. As such, the likely minimal added cancer control benefit of open surgical extirpation over endoscopic management is outweighed by the risk of peri-operative complications. While ureteral stent placement or percutaneous nephrostomy with BCG instillation might be indicated for higher grade or stage disease managed endoscopically, it is unnecessary in this situation, in this case, endoscopic laser ablation is likely adequate initial treatment of the ureteral tumor. Follow-up for these tumors must include evaluation of both the upper tract and the bladder, as there is increased risk of bladder tumors in these patients. Therefore, quarterly upper tract surveillance with imaging or ureteroscopy, cystoscopy, and urine cytology is the best surveillance strategy in this patient. BCG for high grade upper tract UC is occasionally used in patients with a solitary kidney or similar circumstances, but there is no definitive data to support a benefit.

55. A 73-year-old woman with high-grade muscle invasive bladder cancer in the bladder neck and dome of the bladder as well as CIS desires an orthotopic urinary diversion. The strongest relative contraindication to this type of diversion would be:
A. age.
B. multifocal disease.
C. presence of CIS.
D. preoperative unilateral hydronephrosis.
E. bladder neck involvement.
ANSWER=E
The incidence of tumor involving the urethra in women undergoing cystectomy for bladder urothelial carcinoma is approximately 12%. The urethral recurrence rate in properly selected patients is low at less than 4%. Bladder neck tumor involvement in women, however, may be seen in approximately 22% of patients and is a risk for a urethral tumor in about half (12%). Preoperative involvement of the bladder neck with tumor in women is not an absolute contraindication as long as full-thickness, intraoperative, frozen section analysis reveals no tumor involvement of the proximal urethra (distal surgical margin). Age, tumor grade and pathological stage do not appear to be significant risk factors or contraindications to orthotopic diversion in women. CIS and multifocality also increase the risk of urethral occurrence, but not to the same degree as bladder neck involvement.

56. During an inguinal approach to a pediatric hernia, the ilioinguinal nerve can be separated from the cord structures by entering the:
A. external oblique fascia,
B. cremaster.
C. internal spermatic fascia,
D. processus vaginalis.
E. Scarpa fascia.
ANSWER=B
The ilioinguinal nerve runs in the cremaster layer, and can be effectively spared by opening the cremaster and separating it from the remainder of the cord. The nerve does not have to be individually dissected.

57. A 32-year-old man with bilateral congenital absence of the vas deferens (CBAVD) is most likely to have:
A. unilateral renal agenesis,
B. a brother with vasal agenesis,
C. hypospermatogenesis.
D. low semen volume.
E. Y chromosome microdeletion.
ANSWER=D
Congenital bilateral absence of the vas deferens (CBAVD) is associated with cystic fibrosis gene mutations in 85% of patients. Approximately 7% of brothers will have also vasal agenesis. Only 10-15% of men with CBAVD will have unilateral renal agenesis and most of these are in patients with no identifiable cystic fibrosis gene mutation. There is no association with Y microdeletions. Semen is almost always of low volume and acidic due to hypoplasia or absence of the seminal vesicles, which provide alkalinity.

58. A three-month-old boy with a history of incised PUVs has a febrile illness. There is difficulty passing a catheter per urethra into the bladder to obtain a urine specimen. The most likely cause is:
A. urethral stricture.
B. residual valve leaflet.
C. external sphincter spasm.
D. bladder neck hypertrophy.
E. false passage from previous catheterization.
ANSWER=D
Consequences of PUV are detrusor hypertrophy and bladder neck hypertrophy. The outlet obstruction will result in elongation and dilation of the prostatic urethra due to the relative lack of musculature of the prostatic urethra. The hypertrophy of the bladder neck causes an upward course of the prostatic urethra and a high riding bladder neck which can make urethral catheterization difficult. During cystoscopy of such a posterior urethra, the cystoscope must be angled directly anterior in order to gain access to the bladder. All of the other options may also make catheterization difficult, but they are less likely to occur than bladder neck hypertrophy in the setting of a history of posterior urethral valves.

59. A 37-year-old woman with recurrent stones is taking topiramate for migraine headaches. To minimize the risk of stones, the next step is:
A. amiloride.
B. allopurinol.
C. potassium citrate,

D. calcium carbonate,
E. carbonic anhydrase inhibitor.
ANSWER=C
In this clinical scenario, the use of topiramate creates a chronic intracellular acidosis. This in turn creates a urinary milieu similar to distal renal tubular acidosis with hyperchloremic acidosis, high urine pH, extremely low urinary citrate, and hypercalciuria. Treatment may be potassium citrate or cessation of the medication if possible. Amiloride will reduce urine calcium when used in conjunction with thiazide but is not indicated in this situation. Allopurinol is the preferred treatment for hyperuricosuria. Calcium carbonate has no role in the medical management of kidney stones. Topiramate acts as a carbonic anhydrase inhibitor and addition of a similar agent would be counterproductive.

60. A 34-year-old man has priapism for more than 48 hours. He continues to have a firm, indurated penis despite a corporal-glanular shunt followed by a proximal corporaspongiosum shunt. The next step is:
A. penile Doppler ultrasound and corporal blood gas determination,
B. continuous irrigation with an alpha-adrenergic agent,
C. systemic baclofen.
D. selective embolization of cavernosal artery,
E. penile prosthesis.
ANSWER=A
Ischemic priapism presenting in a significantly delayed fashion (> 48-72 hours) may predictably fail to resolve with intracavernous treatment as well as surgical shunting and suggests that erectile dysfunction will be the inevitable outcome. Even if a successful shunt is performed, woody induration of the penis may persist. To confirm the presence of persistent hypoxemia, a penile Doppler ultrasound to assess for vascular flow and a corporal blood gas determination should be performed. If these evaluations confirm poor vascular flow and continued ischemia, experts have advocated immediate placement of a penile prosthesis. The recommendation is based in part on the knowledge that placement of a penile prosthesis at a later time, after significant fibrosis has evolved, is extremely difficult and fraught with higher complication rates. Based on the duration of priapism, it is unlikely that continuous irrigation with an alpha-adrenergic agent or systemic baclofen would be effective. Selective embolization of the cavernosal artery is a consideration for treatment of high flow priapism, not ischemic induced priapism.

61. A 63-year-old man has an incidentally discovered 3.8 cm left adrenal mass with a negative endocrine evaluation. The test most likely to differentiate between malignant and benign histology is:
A. MRI scan.
B. duplex Doppler ultrasound.
C. CT scan with and without contrast.
D. MIBG.
E. fluorodeoxyglucose PET.
ANSWER=C
Lesion size is the most reliable clinical means to differentiate benign from malignant incidental adrenal tumors. Tumors < 4 cm in size are malignant in only 2% of cases. All of the listed radiographic techniques have been applied to adrenal tumor diagnosis, however, CT scan without and with contrast with measurement of contrast washout is the most reliable indicator for malignant mass. On non-contrast images, lipid-rich adrenal adenomas will be homogenous and will have < 10 Hounsfield units. For lesions with > 10 Hounsfield units, a washout contrasted CT scan is necessary to distinguish benign lipid-poor adenomas versus malignant masses. Malignant masses will have delayed washout of contrast maintaining an average of 30 Hounsfield units higher signal intensity at ten minutes following contrast administration when compared to benign lesions which washout rapidly.

62. A six-week-old asymptomatic boy has intermittent drainage from the umbilicus. A fistulogram with contrast injected through the umbilicus is shown. The next step is:
A. topical silver nitrate to umbilical stump.
B. VCUG.
C. CT scan.
D. immediate excision with bladder cuff.
E. observation, excision at six months if symptoms persist.

ANSWER=E
This child has a patent urachus. Fifty percent of radiographically confirmed patent urachus will spontaneously close in the first six months of life and observation is warranted. Topical silver nitrate is a reasonable treatment modality for small urachal cysts, but the physician should be aware of the increased risk of bladder or bowel injury with silver nitrate used in the presence of a patent urachus or omphalomesenteric duct (connection of the umbilicus to small bowel). Treatment of a patent urachus or mesonephric duct (i.e., omphalomesenteric duct) by silver nitrate is contraindicated due to possible injury to the bladder or small bowel. A CT or MRI scan is sometimes obtained on these children to exclude a patent omphalomesenteric duct; however, in this case, the CT scan is not necessary because the diagnosis of patent urachus is confirmed by sinogram. A VCUG is usually not necessary if a sinogram confirms the diagnosis unless history suggests the presence of a bladder outlet obstruction that could be the etiology of urachal patency.

63. The most common cause of hyperuricosuria is:
A. gout.
B. excess Vitamin C intake.
C. dietary purine excess.
D. decreased urinary volume.
E. myeloproliferative disorders.
ANSWER=C
The most common cause of hyperuricosuria is excessive dietary purine intake. Gout, metabolic syndrome (obesity, hypertension, hyperlipidemia, and hyperglycemia) and myeloproliferative disorders are significant but less common risk factors. Decreased urinary volume and decreased citrate intake are not typical causes of hyperuricosuria. Excess Vitamin C intake is associated with hyperoxaluria.

64. A 60-year-old man has a 3 cm squamous cell carcinoma of the penile urethra (3 cm from the meatus) and a palpable 2 cm right inguinal lymph node. Metastatic survey is otherwise negative. The next steps are partial penectomy and:
A. right inguinal XRT.
B. right inguinal lymphadenectomy.
C. bilateral inguinal lymphadenectomy.
D. cisplatin-based chemotherapy.
E. 5-FU and bilateral inguinal XRT.
ANSWER=B
Partial penectomy with an adequate surgical margin is the treatment of choice for urethral tumors localized to the distal half of the penis. Palpable inguinal lymph nodes occur in about 20% of cases and almost always represent metastatic disease, in contrast to penile cancer, in which a substantial percentage of palpable nodes may be inflammatory. Lymphatics from the male anterior urethra drain into

the superficial and deep inguinal lymph nodes and occasionally into the external iliac nodes. Ilioinguinal lymphadenectomy is indicated in the presence of palpable inguinal lymph nodes without evidence of metastatic disease. Unlike penile cancer, benefit from prophylactic contralateral inguinal node dissection or XRT has not been demonstrated in urethral cancer. Although some instances of tumor control by radiation have been reported, in general, XRT has been reserved for patients with early-stage lesions who refuse surgery. The combination of chemotherapy and radiation has shown some success in a small number of patients, however, squamous cell cancers respond poorly to the M-VAC regimen.

65. An asymptomatic five-year-old boy develops gross hematuria two hours after wrestling with his younger brother. Physical examination is normal. The next step is:

A. observation.
B. serial examinations and hematocrit determination.
C. ultrasound of bladder and kidneys.
D. CT scan.
E. cystoscopy.
ANSWER=C

It is recognized that underlying genitourinary malformations or other pathologies are at least three-fold more common in pediatric patients relative to adults undergoing evaluation for trauma. This is a classic case for raising the concern of an underlying abnormality since the gross hematuria seems out of proportion with the low severity of the trauma. The underlying problems may include hydronephrosis, multicystic kidney, Wilms' tumor, and various renal fusion anomalies. Therefore, it is appropriate to image with ultrasound to look for such potentially significant problems. A patient should not be considered for admission with serial examinations and hematocrit determination unless there is a documented substantial renal injury. Cystoscopy is not indicated in the initial evaluation of gross hematuria in children. CT scan would only be indicated if there is significant injury or abnormality on ultrasound, or if the mechanism of injury was more concerning.

66. A six-year-old boy with a history of myelomeningocele has two febrile UTIS six months after a bladder neck sling and appendicovesicostomy. An ultrasound shows normal upper tracts and VCUG shows new grade IIV bilateral VUR. The next step is:

A. increase CIC frequency,
B. add antimuscarinic therapy,
C. urodynamics.
D. MRI scan of spine,
E. endoscopic correction of VUR.
ANSWER=C

This child has new onset reflux and febrile UTIs after a surgical procedure that increased his bladder outlet resistance. Of concern in this situation is that approximately 15% of patients with a neurogenic bladder will develop a poorly compliant bladder after increasing urinary outlet resistant. New onset of vesicoureteral reflux in this situation may be due to either noncompliance with CIC, thus resulting in an overdistention of the bladder, or the development of detrusor non-compliance. Urodynamics are first required to see if the bladder has deteriorated and to better direct treatment. If compliance and capacity are unchanged, then attention to the frequency of catheterization, with or without the addition of antimuscarinic therapy, should be the primary consideration. Treatment of reflux in a patient with a neurogenic bladder is not appropriate without an understanding of bladder dynamics since high storage pressures doom correction to failure. A spinal MRI scan can be considered if the urodynamics are abnormal, although a change in bladder function is likely related to the sling and not a tethered cord.

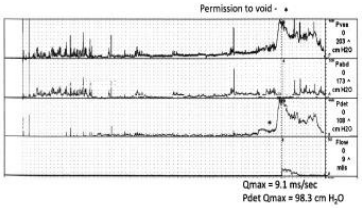
67. Eight weeks following placement of a mid-urethral polypropylene sling, a 73-year-old woman has no leakage but reports difficulty voiding. Her urinalysis shows large numbers of RBCS and WBCS, and PVR is 300 ml. She is started on antibiotics. The next step is to teach her CIC and:

A. pressure flow urodynamics.
B. urethral dilation.
C. tamsulosin.
D. cystoscopy.
E. incise sling.
ANSWER=D

The patient appears to be obstructed following mid-urethral sling placement and should be considered for sling incision. Urodynamic data can be useful in select cases, but if the symptoms began after the sling was placed, she will likely need to have the sling incised regardless of urodynamic findings. Cystoscopy is necessary, however, to evaluate for urethra or bladder mesh perforation and other bladder pathology, as well as hypersuspension, and should be done before planned sling incision. Cystoscopy is of particular importance in the patient with hematuria. Sling incision will likely be necessary but only after cystoscopy has ruled-out overt urethral erosion or other bladder/urethral pathology. Office urethral dilation is not recommended at such a late period of time after sling surgery as the synthetic mesh is likely scarred in at this time. Tamsulosin may help mild functional obstructions but iatrogenic anatomic obstruction is unlikely to improve.

68. A 55-year-old man has bothersome LUTS poorly responsive to medical therapy. Pressure-flow urodynamics are shown. He refuses therapy that may result in retrograde ejaculation. The next step is:

A. TUIP.
B. TUMT.
C. prostatic urethral lift (UroLiftTM).
D. photoselective vaporization of the prostate (PVP).
E. Holmium laser enucleation of the prostate (HOLEP).



ANSWER=C

The urodynamics are consistent with bladder outlet obstruction with a voiding pressure close to 100 cm H20 and a maximal flow close to 9 ml/sec. All of the options address bladder outlet obstruction, however, only the prostatic urethral lift does not cause retrograde ejaculation. TUIP, TUMT, PVP, and HOLEP all place patients at risk for retrograde ejaculation with the risk ranging from 9.2-67%. The prostatic lift obtained FDA approval in 2013 for the treatment of symptomatic BPH. The procedure does not involve cutting or resection of prostate tissue, instead relying on an implant to “lift" or pull the prostatic tissue away and open the prostatic urethra. To date, there have been no reports of erectile dysfunction or retrograde ejaculation in patients treated with this modality.

69. A 51-year-old man with a solitary kidney has multifocal high grade T1 urothelial carcinoma in the left upper pole and multifocal CIS in the left ureter three years after cystectomy and ileal conduit. The next step is:

A. retrograde upper tract BCG.
B. percutaneous resection followed by antegrade BCG.
C. partial nephrectomy followed by retrograde upper tract BCG.
D. nephroureterectomy.
E. nephroureterectomy with conduit excision
ANSWER=D

The best answer involves nephrouretectomy in this setting with hemodialysis and possible future renal transplantation. The use of BCG in patients with ileal conduit urinary diversion is associated with up to a 10% risk of sepsis due to absorption. Partial nephrectomy in the setting of multifocality is associated with an unacceptable recurrence rate. Systemic chemotherapy would be poorly tolerated in the setting of a solitary kidney and not effective for CIS. The ileal conduit should be left in-situ and could be used in the future if renal transplantation is planned.

70. In a patient with Fournier's gangrene, the factors found to improve patient survival are early recognition of the diagnosis, aggressive surgical debridement, and:

A. transfer to a tertiary care center,
B. broad-spectrum antibiotic therapy
C. hyperbaric oxygen,
D. aggressive glycemic control,
E. placement of a suprapubic tube.

ANSWER=B

Early recognition of the diagnosis, aggressive surgical debridement and the use of broadspectrum antibiotics are the most essential interventions in stopping the rapidly progressing infectious process of Fournier's gangrene. The combination of aggressive surgical therapy and appropriate antibiotic coverage has been documented to result in a reduction in mortality. Although high volume centers may have lower mortality, transfer to a tertiary facility may interrupt or delay care and should not be considered until the patient is initially stabilized. While hyperbaric oxygen has been proposed to reduce ongoing necrotizing tissue loss, it has not been found to reduce mortality. Glycemic control while important has also not been shown to influence survival. Diversion of urinary or fecal streams play a major role in reducing postoperative wound complications and length of postoperative care but have not been directly correlated to increased patient survival.

71. A 26-year-old man with complete C7 spinal cord injury managed by CIC has recurrent episodes of vague abdominal pain, severe headache, and diaphoresis. Imaging reveals a 12 mm obstructing radiolucent UPJ stone and urinalysis shows a pH of 5.0, 25-50 RBC/hpf, 0-5 WBC/hpf, and no bacteriuria. The next step is:

A. urinary alkalinization.
B. urinary alkalinization and tamsulosin.
C. stent placement.
D. ureteroscopic intervention.
E. percutaneous nephrolithotomy.

ANSWER=C

The patient presented with symptoms of autonomic dysreflexia that have temporarily subsided but are likely to recur. This represents a life-threatening situation. Stent placement will avert recurrent obstruction and dysreflexia. Alkalinization and medical expulsive therapy are appropriate once the patient has been stented. Surgical intervention should be entertained if dissolution therapy is unsuccessful.

72. Six months following an uneventful transobturator mid-urethral sling, a 63-year-old woman with previous hysterectomy has a slightly bloody vaginal discharge, but no mesh is visible. Urinalysis is normal. The next step is:

A. repeat examination in three months.
B. vaginal estrogen and repeat examination in three months.
C. cephalexin and reevaluate in one month.
D. cystoscopy.
E. complete sling excision.

ANSWER=B

Even though mesh is not directly palpable on exam, the patient should be presumed to have an extrusion based on the bloody vaginal discharge six months out from surgery. Observation may be reasonable early on, but is unlikely to lead to resolution of the extrusion at this point. Vaginal estrogen is reasonable for a small exposure, such as this one, and failing that, partial sling excision with reapproximation of the vaginal edges may be necessary. Alternatively, one may wish to go straight to partial excision with reapproximation. Complete sling excision would not be required in the case of small extrusion such as this one. If the patient had not had prior hysterectomy, then evaluation for vaginal bleeding {particularly uterine pathology) should be considered. If this patient had blood in the urine or severe new onset urinary symptoms, then cystoscopy would be warranted.

73. A 13-month-old girl has a fever of 38.5° C. A bagged urine specimen is positive for leukocyte esterase, negative for nitrites, and has no growth on culture at 24 hours. The next step is:

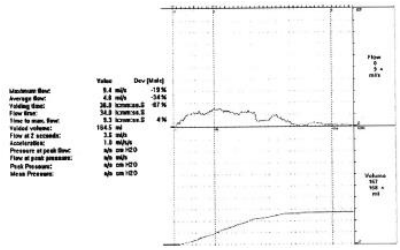
A. observation.
B. empiric antibiotics for UTI
C. catheterized urine specimen,
D. suprapubic aspiration,
E. renal bladder ultrasound.

ANSWER=A

Bagged collection of urine for evaluation in infants is notoriously non-specific for true urinary infection. The usual conundrum is that a bagged specimen will include many bacteria which were perineal and not within the urinary tract; this leads to many false positive results. However, when a bagged specimen shows no growth on culture, it can be seen as being a strong indicator with a > 99% probability that no urinary infection is present. Basically, a bagged culture is helpful to rule out infection if negative, but not very helpful to rule in infection; indeed studies have revealed that if the bag specimen is positive for > 100,000 colonies of a single organism, up to 80% of the specimens will be false positive compared to simultaneously obtain catheterized urine specimen. Leukocyte esterase was positive, but this finding only indicates that the urine came into contact with inflamed tissues and is not at all very specific for a true UTI. Urinary nitrite is produced when bacteria that reduce urinary nitrate to nitrite have been in contact with the urine. Classically, this signifies that the urine has come into contact with a member of the bacterial family of Enterobacteriaceae, e.g., Escherichia coli, Klebsieila, Proteus, Enterobacter, Serratia, or Citrobacter. It is noteworthy that clinically symptomatic UTIs with streptococcus, enterococcus, pseudomonas, and Candida will turn urine nitrite positive in < 5% of infections. The combined findings in this patient highly suggest that this girl is very unlikely to have a UTI; negative bagged urine culture, negative urine nitrite. She should not be treated for UTI and repeat culture in this circumstance is likely a waste of resources. Another source for the possible febrile illness should be sought.

74. A 60-year-old man with bothersome LUTS undergoes a non-invasive uroflow which is shown. He has a PVR of 100 ml. Based on these results:

A. the study should be repeated until the total voided volume is greater than 180 ml.
B. he would likely be obstructed if he was ten years older with the same uroflow results.
C. he has a high likelihood of moderate to significant bother based on his AUA Symptom Score.
D. the cause of this patient's LUTS cannot be differentiated between obstruction and underactive bladder.
E. he would have a poorer outcome after prostatectomy compared to patients with a peak flow rate greater than 15 ml/sec.



ANSWER=D

Uroflow evaluation with the determination of urinary residual is an important screening tool for patients with lower urinary tract symptoms. Normal values vary depending on age, sex, and volume voided. In men, urine flow declines with age while women will have minimal alterations with age. In general, in pre-pubertal males and females, the average peak flow rates range from 10-15 ml/sec. Post-puberty until age 45 years, the average peak uroflow rate in males is 21 ml/sec. The average peak flow rate for females is 18 ml/sec. Between the ages 46 to 65 years, the average peak uroflow rate for males will decrease to 12 ml/sec. The average peak uroflow rate for females will remain at 18 ml/sec. Between 66 to 80 years of age, the average peak uroflow rate for males will further decrease to 9 ml/sec. The average peak uroflow rate for females remains at 18 ml/sec. In general, provided the patient voids a minimum of 125-150 ml urologists will find a peak flow rate of < 15 ml/sec in one third of patients evaluated (one standard deviation below the mean) and a peak flow rate of < 12 ml/sec in 5% (two standard deviations below the mean). In using the uroflow to evaluate patients, it is critical to note the' following: 1) The uroflow represents the combined dynamics of the outflow tract and detrusor contractility, a decrease in peak uroflow may be due to either the obstruction of the outflow, tract, poor detrusor contractility, or both. 2) There is minimal to no correlation of the peak uroflow to prostate symptom scores. Specifically, pharmacological therapy for BPH win frequently document significant improvement in symptom scores with minimal to no increase in! peak uroflow. 3) Studies have found that patients with a peak uroflow of > 15 ml/sec have significantly less improvement in prostate symptoms scores following TURP compared to patients with a peak uroflow of < 15 ml/sec. The uroflow, being of prognostic value in this circumstance, enables the surgeon to determine how well surgical intervention will improve the patient's symptoms.

75. Endemic bladder stones in children form due to high urinary excretion of:

A. ammonia.
B. phosphate.
C. sodium.
D. calcium.
E. oxalate.

ANSWER=A

Primary idiopathic (endemic) calculi form in children are commonly found in children from North Africa, the Middle East, and the Far East. With a large immigrant population in the United States, it is important to be aware of this health problem. These children classically rely on a cereal-based diet that is lacking in animal proteins. The lack of protein leads to a dietary phosphate deficiency, low urinary phosphate, and high levels of urinary ammonia. Due to this, the most common stone found in children from these areas is ammonium acid urate. High urinary sodium, calcium, and oxalate are not characteristic findings with endemic bladder stones.

76. A 50-year-old man with multiple endocrine neoplasia II has hypertension resistant to three antihypertensives. An MRI scan shows a 3 cm adrenal mass. A plasma-free metanephrine is elevated, and he is placed on phenoxybenzamine which is increased to the maximal dose. Despite this, he continues to have episodic hypertensive crises associated with sweating and palpitations. The next step is:

A. switch phenoxybenzamine to metyrapone.
B. addition of prazosin.
C. addition of metyrosine.
D. addition of clonidine.
E. immediate surgical removal.

ANSWER=C

In patients with a suspected pheochromocytoma, it is critical to achieve adequate alpha-blockade prior to surgery. This is typically accomplished with phenoxybenzamine. In patients in whom blockade with phenoxybenzamine is inadequate, the addition of metyrosine, a tyrosine hydroxylase inhibitor, has been recommended to prepare the patient for anesthesia or surgery. An alternative to metyrosine would be to continue the phenoxybenzamine and add a beta-blocker, but in this setting of inadequate alpha-blockade, the addition of a beta-blocker has on occasion been found to be associated with increased alpha-receptor stimulation and furthering hypertension. Therefore, the addition of metyrosine would be a better choice in patients who have their hypertension poorly-controlled by phenoxybenzamine. Weak alpha-blockers, such as prazosin, have been used, however, a majority of patients still appear to have hypertensive crises prior to or during surgery while on these drugs. Immediate surgical removal would be dangerous without pre-surgical medical stabilization which has not been accomplished in this patient. Clonidine and metyrapone do not play a role in the medical management of pheochromocytoma.

77. A man with castration-resistant metastatic prostate cancer receives oral abiraterone acetate and prednisone. The toxicity most likely to require dose reduction or discontinuation is:

A. hypertension,
B. fluid retention,
C. hypokalemia,
D. hepatotoxicity.
E. nephrotoxicity.

ANSWER=D

Abiraterone acetate is an oral Cyp-17 lyase and hydroxylase inhibitor indicated for the treatment of men with castration-resistant metastatic prostate cancer post-docetaxel treatment.The blockade of Cyp-17 inhibits androgen biosynthesis at all sites as well as inhibiting the biosynthesis of corticosteroids and can cause upregulation of ACTH and resultant hypersecretion of mineralocorticoids. Increased mineralocorticoids can cause hypertension, fluid retention, and hypokalemia. It is co-administered with prednisone. The most serious adverse event associated with its administration is hepatotoxicity, that can be severe and potentially life threatening. Liver enzymes as well as electrolytes must be checked frequently (every two weeks for the first three months) when initiating the medication. There is no associated renal toxicity. Fatigue, hypokalemia, and fluid retention are relatively common side effects but typically do not require dose reduction.

78. The most common complication associated with laparoscopic RPLND is:

A. retrograde ejaculation,
B. bowel injury,
C. intraoperative bleeding,
D. chylous ascites,
E. prolonged ileus

ANSWER=C

Laparoscopic retroperitoneal lymphadenectomy (RPLND) has become a feasible technique compared to the open approach. The laparoscopic complications seem to compare favorably to the historic open RPLND series with the exception that an increased blood loss with the laparoscopic technique over the open technique has been reported. This complication appears to be related to the

surgeon's experience and is more common during the initial learning curve. That stated, this complication is still the most commonly reported complication of the laparoscopic procedure. The adequacy of the laparoscopic lymph node dissection in an experienced surgeon's hands is similar to open surgery with no increase in tumor recurrence noted. The observed frequencies in retrograde ejaculation, chylous ascites, and prolonged ileus are no different compared to the open approach.

79. A six-month-old girl has a fever of 39° C, lethargy, and poor oral intake. Catheterized urine specimen demonstrates 2+ leukocyte esterase, positive nitrite, and few bacteria on microscopic examination. A urine culture is sent. The next step is:

A. hold antibiotic treatment until the culture is finalized,
B. oral nitrofurantoin.
C. I.V. ceftriaxone.
D. renal and bladder ultrasound.
E. DMSA renal scan
ANSWER=C

This child has clinical signs and symptoms of severe UTI (high fever, lethargy, and poor oral intake). Although culture results are not available, the urinalysis findings are suggestive of a UTI. Specifically, if both a positive leukocyte esterase and positive nitrite are present, 75% of the patients will have a positive culture result, i.e., a single bacterial organism at > 50,000 colonies of bacteria per ml of urine. If bacteria are seen on a catheterized urine specimen, it is 70% sensitive for a UTI for a positive culture result, i.e., a single bacterial organism at > 50,000 colonies of bacteria per ml of urine. The combination of these findings along with the patient's clinical symptoms strongly suggests that treatment should be instituted while awaiting the culture results. Nitrofurantoin achieves a low serum concentration, and is, therefore, inappropriate for severe systemic UTI. Imaging studies, such as ultrasound, CT, or MRI evaluation are indicated to rule out anatomic abnormalities if a child does not respond to treatment after 72 hours of I.V. appropriate antibiotics. A DMSA scan may be used to determine if the febrile infections is due to pyelonephritis, however, it should not be done prior to the institution of antibiotic therapy in this setting. The correct step is to begin a broad-spectrum antibiotic therapy, such as I.V. ceftriaxone.

80. A four-year-old girl with spina bifida is wet between urethral catheterizations. Her detrusor LPP is 50 cm H20 and her Valsalva LPP is 70 cm H20. She is started on oxybutynin. A repeat urodynamic study will reveal:

A. unchanged detrusor LPP; unchanged Valsalva LPP.
B. unchanged detrusor LPP; increased Valsalva LPP.
C. decreased detrusor LPP; increased Valsalva LPP.
D. decreased detrusor LPP; decreased Valsalva LPP.
E. decreased detrusor LPP; unchanged Valsalva LPP.
ANSWER=A

The LPP is determined by the resistance of the external sphincter. Antimuscarinic medication, such as oxybutynin, does not affect the external sphincter which is a striated muscle. Therefore, there should be no change in the LPP (detrusor or Valsalva). The effect of the antimuscarinic medication on the detrusor may increase bladder compliance by increasing the volume of urine stored at a given pressure, and thereby, increase the patient's bladder capacity. The closing pressure of the proximal urethra will not be affected.

81. To reduce post-operative pulmonary morbidity in smokers to the same level as non- smokers, patients should discontinue smoking for a minimum of:

A. one month,
B. two months,
C. three months
D. six months,
E. one year.
ANSWER=B

Regarding operative risks for major urologic procedures, epidemiologic studies have shown that postoperative morbidity is fourfold and mortality is up to tenfold higher in smokers compared to nonsmokers. To decrease the risk of pulmonary complications to the level of a non-smoker, the smoking must be discontinued for at least two months preoperatively.

82. A 60-year-old man is diagnosed with a single focus of CIS of the bladder. He is treated with six doses of intravesical BCG. A month after his last dose, his cystoscopy is normal and his cytology is negative. The next step is:

A. bladder biopsy to confirm complete response,
B. observation with regular surveillance cystoscopy and cytology,
C. maintenance BCG with the first of three weekly doses at three months,
D. maintenance BCG with the first of three weekly doses at six months,
E. maintenance BCG single monthly dose for one year.
ANSWER=C

BCG maintenance therapy is indicated for patients with CIS, even if focal, who achieve a complete response. The Southwest Oncology Group (SWOG) reported the most significant impact of maintenance therapy. Patients received a six-week induction course followed by three weekly instillations at three and six months and every six months, thereafter, for three years. This patient is at the three month point and should receive the first set of maintenance treatments as the next step. Estimated median recurrence-free survival was 76.8 months in the maintenance arm and 35.7 months in the control arm (P = .0001). Bladder biopsy is not necessary if the patient's cystoscopy and cytology are negative. Observation alone is not optimal therapy unless the patient has a contraindication or serious complication from BCG. Monthly BCG has been described and is commonly used, but has not been tested against the maintenance schedule proven to be effective in the large published SWOG trial.

83. A 68-year-old man has a posterior bladder injury during a low anterior resection for locally advanced colon cancer that is repaired primarily with a two layer repair. Postoperatively, a urethral catheter is left indwelling. Serial postoperative cystograms obtained at three, six, and nine weeks following surgery reveal persistent extraperitoneal extravasation from the posterior bladder wall. A ČT scan reveals no pelvic masses and no evidence of ureteral injuries. The next step is:

A. repeat cystogram in three weeks.
B. cystoscopy and fulguration.
C. cystoscopy and biopsy.
D. primary repair and omental interposition.
E. suprapubic cystostomy.
ANSWER=C

Persistent drainage nine weeks following a repaired bladder injury would indicate issues related to poor healing such as foreign body, inadequate drainage from an indwelling catheter or recurrent/persistent malignancy. This injury is unlikely to heal with further catheter drainage following nine weeks of observation and waiting an additional three weeks and repeating a cystogram would be of little to no merit. The next step should be a cystoscopy and biopsy to rule out recurrent/persistent malignancy before proceeding with definitive therapy. Assuming the urethral catheter is working appropriately, suprapubic drainage will not be any more efficient and not resolve the issue. Fulguration of a fistula tract and/or injection of fibrin glue have been shown to be of benefit in fistula < 5 mm in size with definitive repair of fistula pursued in large or persistent fistula. Surgical intervention, however, should not be pursu until persistent or recurrent malignancy has been ruled out.

84. A stone measures 15 mm on CT imaging. When estimating the stone size, ultrasound and KUB will respectively:

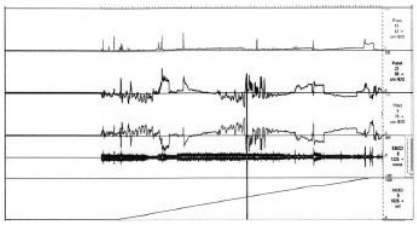
A. overestimate, overestimate.
B. overestimate, underestimate.
C. underestimate, overestimate.
D. accurately estimate, underestimate.
E. underestimate, accurately estimate.

ANSWER=D

There is an increased awareness of the radiation risks of computed tomography. In view ofthis, ultrasound is an attractive alternative to measure stone size. The clinician should be aware of the limitations on ultrasound imaging of urolithiasis. Ultrasound will correlate approximately two thirds of the time with the stone size determined on CT scan. Specifically, the ultrasound will overestimate the size of one third of the stones smaller than 10 mm, and underestimating the size of one third of stones, > 10 mm. KUB underestimates > 90% stones, > 10 mm due in part to its inability to measure in three dimensions.

85. A 64-year-old man requires CIC to empty his bladder six months after a lumbar laminectomy. He denies incontinence between CIC. Urodynamics are shown. The next step is:

A. continue CIC.
B. antimuscarinics.
C. alpha-blocker.
D. onabotulinumtoxinA.
E. lumbar to sacral nerve re-routing ("Xiao procedure").



ANSWER=A

This can be a challenging study to interpret due to the excessive activity from the rectal catheter. This results in artifactual activity in Pdet that is not a true change in this patient's detrusor pressures. In interpreting this study, it is important to look at all of the tracings on the study. Aside from a few pressure spikes due to cough, the Pves tracing is essentially flat to a filled volume of more than 1000 ml. This patient will be best treated with continued CIC. Therapies aimed at decreasing detrusor pressure (antimuscarinics and onabotulinumtoxinA) are not needed. Use of alpha-blockers would not be helpful in this patient who appears to have an areflexic bladder with only a small, short-lived rise in his vesical pressure at capacity. Lumbo-sacral re-routing was initially reported to be an option for spina bifida patients that were unable to void spontaneously; however, subsequent reports have not shown this to be overly beneficial and this procedure has not been evaluated in patients with urinary retention following laminectomy.

86. The baseline sexual and ejaculatory function of a man with a complete L1 spinal cord injury is:

A. reflex erection, no emission, and no ejaculation.
B. no erection, normal emission, and retrograde ejaculation.
C. no erection, no emission, and no ejaculation.
D. reflex erection, normal emission, and normal ejaculation.
E. reflex erection, normal emission, and retrograde ejaculation.

ANSWER=A

Three neural pathways are necessary for complete sexual function. They are: sympathetic (T10-L2), parasympathetic (S2-S4), and motor function to the perineal muscles from the somatic motor neurons (S2-S4). Erections may be either cerebrally or directly induced by penile stimulation, i.e., reflexic erections. Cerebral induced erections occur in response to visual or sensory erotic stimulation to the cerebral cortex. Erections by this method occur via central innervation of the parasympathetic pathway, through the S2-S4 nerve routes and require an intact spinal cord. The parasympathetic pathway can also be stimulated by direct penile stimulation through S2-S4 sensory fiber stimulation to cause erections, i.e., reflexic induced erections. The three phases necessary for semen production are: emission, closure of the bladder neck, and ejaculation. In response to cerebral stimulation, signals are conducted down the thoracolumbar sympathetic nerves, resulting in sympathetic induce contraction of prostatic smooth muscle, seminal vesicles, and the vas deferens and allowing pre-ejaculatory fluid to be deposited into the prostatic urethra, a process called emission. Bladder neck closure occurs concurrently with emission in response to alpha-sympathetic stimulation by the sympathetic innervations. Emission will result in swelling of the bulbar urethra, the distension of the bulbar urethra stimulating rhythmic contractions of the bulbocavernosus, and pelvic floor muscles under somatic control through S2-S4 nerve roots (Onufs nucleus). Semen is then projected in an antegrade fashion. Disruption of the sympathetic nerve fibers that travel through these plexuses with a complete spinal cord injury between T12-L2 can, therefore, cause loss of seminal vesicle emission and/or failure of bladder neck closure. Distention of the prostatic urethra will not occur, i.e., failure of emission, and the somatic controlled periurethral and pelvic muscles will not be stimulated to contract resulting in anejaculation. Reflexic erections, however, will be maintained since the parasympathetic and penile sensory S2-S4 nerve plexuses are intact.

87 A 68-year-old man has received intravesical BCG therapy for bladder cancer. He is asymptomatic, but a new firm area in the prostate gland is noted on DRE. The serum PSA is 3.1 ng/ml. A TRUS-guided biopsy reveals a caseating granuloma. The next step is:

A. observation.
B. isoniazid for six months.
C. cycloserine for six weeks.
D. isoniazid and rifampin for three months.
E. isoniazid, rifampin, and cycloserine for six months.

ANSWER=A

This asymptomatic patient has developed granulomatous prostatitis. This is a common condition following intravesical BCG therapy that requires no further intervention. If the patient is on maintenance BCG, it can be continued in this scenario. Isoniazid, rifampin, and cycloserine are used for systemic BCG toxicity and are not indicated in this case. The other more common side effect associated with intravesical BCG therapy is bladder irritability. This symptom complex includes dysuria (91%), urinary frequency (90%), hematuria (46%), fever (24%), malaise (18%), nausea (8%), chills (8%), arthralgia (2%), and pruritus (1%).

88. An eight-year-old boy with a history of incised posterior urethral valves has worsening hydroureteronephrosis. His creatinine is 1.3 mg/dl. He is on a timed void interval, with a voiding calendar revealing he voids 400-500 ml every three hours. He has overnight urine output of 1000 ml and remains continent throughout the day and night. Videourodynamics reveals no urethral obstruction or reflux, with detrusor pressures of 40 cm H20 at volumes 500 ml and end-fill detrusor pressures of 60 cm H20 at volumes 700 ml. He voids with pressures generated from the noncompliant bladder with residual urines of 200 ml. The next step is:

A. fluid restriction,
B. oral anticholinergics.
C. CIC.
D. onabotulinumtoxinA.
E. bladder augmentation

ANSWER=C

This patient has the valve bladder syndrome with progressive hydroureteronephrosis developing secondary to nephrogenic diabetes insipidus, obligatory high urine output, and a poorly compliant bladder at capacities of > 500 ml. With approximately 125-150 ml of urine output per hour, he would stay in fairly safe volume/pressure ranges if CIC was instituted every three hours. If hydroureteronephrosis persisted, then overnight catheterization would also be an option. Bladder augmentation would be too aggressive without an aggressive trial of medical management. Oral anticholinergics or onabotulinumtoxinA, if instituted without concurrent use of CIC, would be insufficient therapy due to already large PVR urine. Timedvoiding every two hours while awake would also be reasonable option, however, this would not address his large residuals and may or may not address his hydroureteronephrosis and would demand strict follow-up to verify compliance with medical directives. Fluid restriction would not benefit this patient with nephrogenic diabetes insipidus and would only lead to relative dehydration and possibly worsening renal failure.

89. A 31-year-old man undergoes bilateral testicular biopsy during evaluation for infertility. Left testicular biopsy reveals intratubular germ cell neoplasia (ITGCN). Scrotal ultrasound is normal except for a moderate left varicocele. The next step is:

A. in vitro fertilization/intracytoplasmic sperm injection.
B. left varicocele repair.
C. low dose XRT to the left testis.
D. left radical orchiectomy.
E. single-dose carboplatin chemotherapy.

ANSWER=D

Intratubular Germ Cell Neoplasia (ITGCN) is diagnosed by testicular biopsy performed for the investigation of infertility, by biopsy of the contralateral testis in a patient with germ cell tumor (GCT), or by biopsy within the affected testis in a patient undergoing testis-sparing surgery. The rationale for treatment of ITGCN is based on the high risk of developing invasive germ cell tumor in at least 50% of patients. Treatment options include, orchiectomy, low-dose radiotherapy, and close observation. The choice of therapy should be individualized based on the patient's desire for future paternity, the presence or absence of a normal contralateral testis, and the patient's desire to avoid testosterone replacement therapy. Radical orchiectomy is the most definitive, although low-dose radiotherapy (20 Gy) is associated with similar rates of local control with the prospect of preserving testicular endocrine function owing to the relative radioresistance of Leydig cells compared with germinal epithelium. For patients who do not desire future paternity, XRT is the preferred option, although radical orchiectomy and testosterone replacement therapy is a reasonable alternative, For patients with a normal contralateral testis who desire future paternity (as is the case with this patient who is pursuing evaluation for infertility), radical orchiectomy is preferred because scatter to the contralateral testis from radiotherapy may impair spermatogenesis. For patients with semen parameters that are abnormal but sufficient for assisted reproductive techniques, close surveillance with periodic ultrasound evaluation of the testis is a reasonable strategy with deferred therapy until successful pregnancy. Another option for these patients is exploration of the testis, spermharvesting, and cryopreservation for assisted reproductive techniques, and radical orchiectomy followed by testosterone replacement therapy. Left varicocele repair alone does not address the concerns for malignant transformation of ITGCN. Single-dose carboplatin chemotherapy has been used in patients with stage I seminoma, but has no defined role in ITGCN. If no intervention is taken, close follow-up, as noted above, is still warranted.

90. A 23-year-old man has buckling and pain during intercourse. On examination, he has minimal penile tenderness and swelling with no ecchymosis or hematoma. Urinalysis is normal. The next step is:

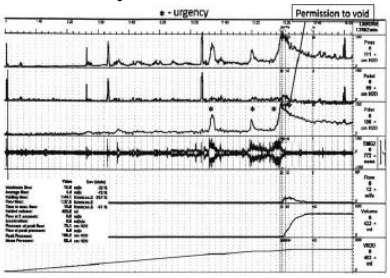
A. Doppler ultrasound.
B. MRI scan.
C. infusion cavernosography.
D. flexible urethroscopy,
E. surgical exploration.

ANSWER=B

Penile fracture can usually be diagnosed by history and physical examination and imaging is unnecessary in the majority of patients. However, the clinician should be aware that differential diagnosis includes a false penile fracture and/or rupture of a penile vein with a subsequent penile hematoma. These latter patients may clinically present with the classic history of a typical snap-pop sensation and immediate detumescence as in this case. In cases in which the physical examination is not classic for a penile facture, imaging with a penile-perineal MRI scan is the most accurate test to prevent unnecessary surgical exploration. Both penile Doppler and cavernosography have very high false negative rates and are not recommended in the evaluation of suspected penile fracture. Obtaining a urinalysis to rule-out a concurrent urethral injury, found in up to 10-20% of patients with a penile fracture is absolutely necessary. In patients with a confirmed penile fracture, imaging of the urethra prior to exploration is mandatory and can be performed with either a retrograde urethrogram or cystoscopy at the time of the procedure. If a urethral injury is found, this should be repaired concurrently with the penile fracture.

91. A 58-year-old man with bothersome LUTS undergoes urodynamics as shown. His PVR urine is 0 ml. The likely etiology of his LUTS is:

A. dysfunctional voiding,
B. detrusor-external sphincter dyssynergia.
C. benign prostate enlargement,
D. multiple sclerosis.
E. Hinman syndrome.



ANSWER=C

The pressure flow urodynamic study reveals detrusor overactivity (DO), coexisting with urodynamic evidence of bladder outlet obstruction. In this study, external sphincter activity is noted with each episode of DO. This is a normal guarding response to an uninhibited bladder contraction and will occur in an attempt to prevent urge incontinence. When given permission to void, EMG activity, which measures the electronic potential of the external sphincter, appropriately quiets and the patient is able to void. Patients with multiple sclerosis (MS) may have DO which is seen in the urodynamic tracing. However, if high-pressure voiding was due to voiding dysfunction secondary to MS then the EMG would be active throughout the voiding phase. Hinman Syndrome (also termed non-neurogenic neurogenic bladder) and dysfunctional voiding are similar entities and would be characterized by simultaneous bladder emptying and voluntary striated sphincter contraction. Detrusor-external sphincter dyssynergia (DESD) is also characterized by simultaneous detrusor and involuntary striated sphincter contraction. The likely etiology of this patient's urodynamic findings is benign prostate enlargement with secondary DO. Bladder outlet obstruction on a urodynamic study may be determined by use of either detrusor pressure flow rate nomograms, or alternatively may be diagnosed when two of the following four

urodynamic criteria are met; flow rate < 12 ml/sec, detrusor pressure at peak flow > 50 cm/hfeO, elevated urethral resistance (Pdet at Qmax divided by 2 X Qmax > 0.2), or significant residual urine (> 100-150 ml) in the presence of high detrusor voiding pressures, i.e., detrusor pressures > 50 cm of H20 at maximum flow rate. This patient has detrusor pressures at peak flow > 50 cm/H20, an elevated urethral resistance of approximately 0.3, and a peak uroflow at the cut-off level.

92. A medication associated with an increased risk of C. difficile in hospitalized patients is:

A. lansoprazole (Prevacid™M).
B. metoclopramide (ReglanM).
C. dicyclomine (BentylTM).
D. diphenoxylate and atropine (LomotilTM).
E. alvimopan (EnteregM).
ANSWER=A

Lansoprazole is a proton pump inhibitor (PPI). It is noteworthy that all PPIs have been found to be significantly associated with an increased risk of C. difficile colonization and infection. This has been attributed to their attenuation of acid secretion by the stomach and elimination of this barrier to bacterial colonization. None of the other medications has been associated with C. difficile colonization or infection.

93. Erythropoietin production in the kidney is regulated primarily by:

A. angiotensin II.
B. high oxygen tension.
C. renin.
D. hypoxia-inducible factor 1-alpha.
E. testosterone.
ANSWER=D

Production of erythropoietin (EPO) is closely associated with circulating oxygen levels. During conditions of hypoxia, hypoxia-inducible factor-1-alpha (HIF-1-a) is upregulated increasing EPO transcription. HIF-1-a is then rapidly degraded by proteases upon restoration of normal oxygen tension. Renin does not directly influence EPO production. Testosterone and angiotensin II induce erythrocytosis through proposed mechanisms, including stimulation of EPO, however, these are thought to be less significant than HIF-1-a. Mutation of the VHL gene such as in patients with von Hippel-Lindau syndrome results in constitutive production of HIF- 1-a, increased EPO with resultant polycythemia. HIF-1-a also upregulates production of vascular endothelial growth factor (VEGF), which is the primary angiogenic factor responsible for the neovascularity associated with RCC.

94. A 54-year-old woman is diagnosed with CIS of the bladder. She is currently taking methotrexate and prednisone for severe rheumatoid arthritis. The next step is:

A. intravesical BCG.
B. intravesical valrubicin.
C. intravesical gemcitabine.
D. taper off methotrexate and prednisone then administer BCG.
E. radical cystectomy.
ANSWER=A

Immunocompromised patients are generally considered to be contraindicated to receive intravesical BCG therapy due to the theoretical concerns of loss of efficacy and increase in toxicity. However, there exists little evidence to support or refute such claims. A recent report from Herr and Dalbagni demonstrate the safety and efficacy of intravesical BCG in immunocompromised patients including patients with autoimmune disease, transplant patients, and patients undergoing systemic chemotherapy. The authors demonstrated that intravesical BCG is safe and effective in immunologically compromised patients with bladder cancer with the majority of patients (91%) having an initial complete response. Transplant patients fared worse but still demonstrated a response to BCG with acceptable tolerability. Therefore, an initial trial of BCG therapy can be considered in this patient following appropriate counseling about risks, benefits, and safety issues. Valrubicin was approved by the FDA in 1998 for the treatment of BCG refractory CIS of the bladder in patients who are medically unfit or refuse a cystectomy, with modest efficacy observed in this setting. It is not indicated in this setting and its role in the immunocompromised patient is uncertain. Although thiotepa is the only intravesical chemotherapeutic agent FDA-approved for papillary bladder cancer, it may result in significant myelosuppression which would be of particular concern in the immunocompromised patient. Furthermore, its efficacy in CIS is limited and it has not been studied in this setting. Intravesical gemcitabine has been shown to have activity in non-muscle invasive bladder cancer in high-risk patients. Although early results are promising in the second line or salvage setting, the limited patient population evaluated supports the need for additional phase II and phase 111 studies. Moreover, its efficacy in the immunocompromised patient is unknown. Radical cystectomy is a reasonable option, but may be too aggressive for this patient as a first line option with untreated CIS.

95. A four-month-old uncircumcised boy is hospitalized for a febrile UTI. He has persistent fevers after 24 hours of appropriate I.V. antibiotic therapy. Renal and bladder ultrasound is normal. The next step is:

A. continue current antibiotic regimen.
B. repeat urine and blood cultures.
C. VCUG.
D. CT scan.
E. circumcision.
ANSWER=A

In the treatment of pyelonephritis, persistence of fever for 72 hours following initiation of I.V. appropriate antibiotics is within the range of normal and no additional studies should be done at this time. Guidelines from the American Academy of Pediatrics recommend further radiologic testing in this age group only if the initial renal bladder ultrasound is abnormal or foroccurrence of a second febrile UTI. Acute DMSA scanning may be helpful in situations where the diagnosis regarding the etiology of the fever is unclear and the physicians desire to document the presence of pyelonephritis. CT or MRI scans may be considered if the renal bladder ultrasound is abnormal or if fever persists beyond 72 hours. Persistent fever > 72 hours is best evaluated with either a CT or MRI scan, with repeat ultrasonography having an unacceptable false negative rate for documenting the presence of a perinephric abscess. A VCUG is not indicated in the acute setting but can be considered once the child is afebrile. Repeat cultures or broadened coverage is not required when initial sensitivities are available but should be considered for a temperature persisting > 72 hours. Circumcision at this age usually requires a general anesthetic and is not needed for a first UTI.

96. A 26-year-old man is shot with a high velocity rifle in the lower abdomen. Exploration reveals a rectal injury which is repaired. Inspection of the left distal ureter reveals a 2 cm contusion. 1.V. administration of methylene blue does not reveal a ureteral leak. He is hemodynamically stable. The next step is:

A. observation.
B. ureteral stent placement.
C. percutaneous nephrostomy.
D. ureteroureterostomy.
E. ureteral reimplant.
ANSWER=E

The patient has suffered a ureteral contusion from a high velocity weapon, and many times the extent of the injury is underestimated at initial exploration. Following a high velocity injury, the patient is

at high risk for subsequent ureteral stenosis, or tissue necrosis from delayed microvascular injury to the ureter. The best option for a distal ureteral contusion from a high velocity injury is ureteral reimplantation. A ureteroureterostomy should not be performed in the distal ureter. Observation, ureteral stent, and percutaneous nephrostomy drainage will not alter the eventual tissue damage from the blast effect and, thus, would not be helpful in this situation.

97. A 62-year-old man with an ileal neobladder has a serum chloride of 114mEq/l, potassium of 3.8mEq/l, creatinine of 1.8 mg/ml, and bicarbonate of 16mEq/l, despite low urinary residuals, normal upper tracts, and timed voiding every three hours. He has a history of hypertension and diabetes mellitus. The next step is:

A. sodium bicarbonate.
B. sodium citrate.
C. potassium citrate.
D. chlorpromazine.
E. nicotinic acid.

ANSWER=C

Following ileal or colonic urinary reconstruction, patients are prone to the develop hyperchloremic, metabolic acidosis due to the exchange of ammonium ions (ammonium chloride) for carbonic acid and water. Treatment of chronic acidosis involves reduction of urinary contact time to ensure minimization of ammonium absorption. In the event the acidosis persists despite frequent catheterization, alkalinizing agents or inhibitors of chloride transport may utilized. Inhibitors of chloride transport, such as chlorpromazine or nicotinic acid, are generally not effective alone in the treatment of acidosis, but they may be used in conjunction with alkalinizing agents. In this case, the use of sodium bicarbonate and sodium citrate should be discouraged given the history of hypertension and the desire to limit sodium intake. As such, potassium citrate is the ideal first choice for treatment.

98. A 60-year-old woman has chronic dysuria and suprapubic discomfort when her bladder is full and during voiding. She has a normal physical exam and urinalysis. Flow rate reveals a total volume voided of 100 ml, peak of 14 ml/sec, average of 8 ml/sec, and a postvoid residual urine of 0 ml. Cystoscopy reveals a focal ulceration on the right lateral wall. Cytology is normal. The next step is:

A. antihistamines (loratadine).
B. tricyclic antidepressants (amitriptyline).
C. oral sodium pentosan polysulfate (Elmiron).
D. intravesical dimethyl sulfoxide (DMSO).
E. biopsy and fulguration.

ANSWER=E

Interstitial cystitis (IC) is a clinical diagnosis characterized by diurnal and nocturnal urinary frequency and urgency, lower abdominal or suprapubic pain with bladder distension, and relief or improvement of pain with voiding. Symptoms should be present in the absence of identifiable pathology, e.g., UTI, and persisting for greater than nine months. Urodynamic evaluations will typically show a bladder capacity < 350 ml. The International Continence Society (ICS) prefers the term “painful bladder syndrome” (PBS) to describe this symptom complex, and reserves the diagnosis of IC for patients with “typical cystoscopic and histological features following hydrodistention”. Classic cystoscopic findings are glomerulations and bladder wall petechial hemorrhage found following hydrodistention. The urologist must be aware, however, that these cystoscopic findings can also be seen upon hydrodistention in patients without IC and other diagnostic criteria, as noted above, must be met. In addition to glomerulations, Hunner originally described a characteristic lesion or “ulcer” in some patients with IC which has led to the classification of IC into 2 types: ulcerative and non-ulcerative. Approximately 15% of patients with IC will have extremely painful areas of inflammation in the bladder, well known as Hunner’s lesions (formerly, Hunner’s Ulcers). The detection of a Hunner lesion is best possible at cystoscopy following hydrodistension. In patients with PBS, the hydrodistension is best done under general, epidural, or local anesthesia due to the exquisite pain it will often invoke within the patient. A Hunner's lesion or "ulcer" is a distinctive inflammatory lesion presenting a characteristic deep rupture through the mucosa and submucosa provoked by bladder distension. Despite the name that has been commonly used, the lesion is not a pathologic ulcer and hence, the term, Hunner’s lesion is gradually being adopted worldwide. A Hunner’s lesion presents as a circumscript, reddened mucosal area with small vessels radiating towards a central scar. This site ruptures with increasing bladder distension, resulting in petechial oozing of blood from the lesion in a waterfall manner. Biopsy of the lesion classically shows inflammatory cystitis, often with epithelial denudation. AUA Treatment Guidelines outline current treatments for Hunner’s lesions to include: figuration, laser therapy, and/or the injection of triamcinolone into the center of the ulcer. Although long-term outcomes regarding injection of triamcinolone are currently unavailable, figuration and laser therapy have been found to be associated with slightly > 50% of patients having complete resolution of their symptoms, with another 25% having > 50% improvement of their symptoms following treatment. Unfortunately, long-term follow-up reveals approximately one-third of the patients that symptomatically improved or resolved their symptoms following fulguration will have a clinical recurrence of their disease process. It is noteworthy that polymyxa viruses have recently been found to be present within Hunner's lesions suggestive that antiviral medications or topical agents with an antiviral effect (Clorpactin®) may be of benefit to this class of IC patients.

99. A two-month-old girl with urosepsis has an ectopic ureterocele associated with moderate left upper pole hydroureteronephrosis and bilateral VUR, grade 2 reflux to left lower pole, and grade 3 reflux to a right solitary collecting system. She hasdefervesced on I.V. antibiotics. The next steps are prophylactic antibiotics and:

A. observation with repeat renal ultrasound and VCUG at one year of age.
B. transurethral incision of ureterocele.
C. left upper pole partial nephrectomy.
D. left upper to left lower pole ureteroureterostomy.
E. ureterocele excision and left common sheath ureteral reimplant and right ureteral reimplant.

ANSWER=B

The obstruction of the upper urinary tract by a ureterocele, resulting in moderate hydroureteronephrosis associated with bilateral vesicoureteral reflux, is the most concerning element found on diagnostic imaging. The findings of associated bilateral ureteral reflux suggest the ureterocele may be obstructing the bladder neck resulting in high pressure voiding and secondary reflux. Intravenous antibiotics followed by transurethral incision of the ureterocele would be the most prudent course of action in this young infant. All of the other options listed would be associated with increased risk of morbidity in an infant of this age. In less than 10% of cases will incision of the ectopic ureterocele completely resolve the clinical findings on repeat VCUG in three to six months. Frequently a repeat VCUG will reveal decompression of the ureterocele, but will have either persistent or new onset of reflux to the left upper pole. Prior to definitive surgical intervention, the latter usually performed at one year of age, assessment of the function of the left upper pole with a DMSA scan is performed along with repeat renal ultrasound and VCUG. Definitive treatment could include any of the surgical options listed; the type of surgery performed would be dependent upon radiographic findings.

100. A 50-year-old woman with a T4 complete spinal cord injury has been managed with an indwelling catheter since her injury ten years ago. She currently complains of constant leakage of urine around her 18 Fr urethral catheter. Examination reveals a patulous urethral meatus with a diameter of two fingers and a urethral length less than 1 cm. The next step is:

A. 22 Fr catheter with 30 ml balloon.
B. peri-urethral calcium hydroxylapatite (Coaptite™) injection.
C. suprapubic tube.
D. bladder neck closure and suprapubic tube,
E. autologous fascial sling

ANSWER=D

This patient has the classic findings of an eroded urethra secondary to long-term indwellingcatheter use. She has essentially lost almost all of her urethral length and has a patulous wide open bladder neck and meatus. Placement of a larger catheter with a larger balloon will only worsen the erosion and would likely not improve the incontinence. A minimum of 1 cm urethral length is believed to be needed to allow for obstruction of the urethra by bulking agents or by sling placement. Although one could attempt urethral lengthening and then proceed with either bulking agents or sling placement, use of these procedures following urethral reconstruction has been found to be fraught with complications. A suprapubic (SP) tube alone would not be sufficient as urine would still leak per her incompetent bladder neck and urethra. This patient would be best served with a bladder neck closure (which could be done via a vaginal or transabdominal approach) and SP tube placement. Other options which could be considered would be bladder neck closure and construction of a continent urinary stoma if she is willing to perform CIC, bladder neck closure and ileovesicostomy, or supra-vesical non-continent urinary diversion.

101. A 30-year-old man with primary infertility has a semen analysis that shows a 2.5 ml ejaculate volume, 50 million sperm/ml, and 1% motility. The morphology score and round cell concentration are normal. A repeat semen analysis is similar. The next step is:

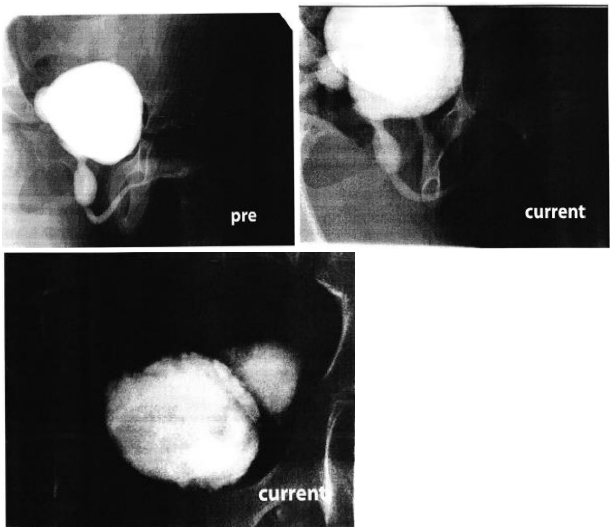
A. post-ejaculate urine analysis,
B. sperm viability testing,
C. transrectal ultrasound,
D. cystic fibrosis mutation screening,
E. semen white blood cell stain

ANSWER=B

Ultrastructural flagellar defects result in motilities of less than 5-10%. In these samples, most of the non-motile sperm are viable. Most cases of ultrastructural flagellar defects are associated with normal sperm densities. Since the semen volume is normal, there is no reason to look for retrograde ejaculation with a post-ejaculate urinalysis. While a partial ejaculatory duct obstruction has been reported to be associated with low motility, this should only be considered if the sperm are viable and thus would not be the next step. Cystic fibrosis mutations are associated with congenital absence of the vas deferens and azoospermia. Semen WBC staining is indicated only if increased numbers of round cells are noted in the semen.

102. A 12-year-old boy has daytime urinary incontinence five years following transurethral incision of PUV. The preoperative VCUG and the current VCUG images are shown. The next step is:

A. CIC.
B. oxybutynin.
C. biofeedback.
D. transurethral incision of PUV.
E. diverticulectomy.



ANSWER=D

The current VCUG image is concerning for the persistence of (residual) PUV tissue with persistence of a dilated posterior urethra and a filling defect noted at the transition point from the prostatic to membranous urethra. Due to these findings, cystourethroscopy and repeat evaluation for possible repeat transurethral incision of PUV is mandatory. He may at some point benefit from biofeedback, oxybutynin, or CIC; however, these treatment modalities should not be employed until after there is documentation of valvular destruction. Radiographic studies do document bilateral bladder diverticula; however, these may or may not be clinically relevant to his voiding dysfunction and their treatment should only be pursued following documentation of valve destruction and failure of conservative treatment modalities.

103. A 53-year-old woman has POP-Q stage 3 anterior compartment prolapse and urinary incontinence. No stress urinary incontinence is noted during urodynamics with cough or Valsalva maneuver performed at a maximum bladder capacity of 400 ml with or without reduction of pelvic organ prolapse by physical manipulation. The next step is:

A. fill the bladder to 100 ml beyond maximal capacity and repeat stress maneuvers.
B. repeat urodynamic study with prolapse reduction performed by a vaginal pessary.
C. remove urethral catheter and repeat stress maneuvers.
D. proceed with prolapse repair with no anti-incontinence procedure.
E. proceed with prolapse repair with sling.

ANSWER=C

The AUA/SUFU Urodynamics Guidelines suggest that clinicians should repeat stress testing with the urethral catheter removed in patients suspected of having stress incontinence (SUI) who do not demonstrate SUI with the catheter in place. Filling the bladder to a higher volume than maximum capacity would not be indicated. Changing the prolapse reduction method would not be expected to change the findings. It should be noted the guidelines on urodynamicassessment of stress incontinence states that there is no standardized method with which to reduce prolapse during a urodynamic study. Patients with marked vaginal prolapse are at a high risk for concomitant stress incontinence and presence of a urethral catheter may prevent manifestation of the stress incontinence during urodynamics. Removal of the catheter (with continued reduction of prolapse) allows for complete evaluation and is the next step prior to proceeding with surgical planning.

104. An 11-year-old girl undergoes bilateral inguinal hernia repairs. Gonads measuring 3.5 cm are found at the internal rings. Biopsies show seminiferous tubules with few germ cells, interstitial fibrosis, and no ovarian follicles. The external genitalia is female, and she has not yet started menses. The most likely diagnosis is:

A. 45 X0 Turner syndrome.
B. 46 XX congenital adrenal hyperplasia.
C. 46 XY complete androgen insensitivity syndrome.
D. 45 X/46 XY mixed gonadal dysgenesis.
E. 46 XY pure gonadal dysgenesis.
ANSWER=C
Histology in this disorder of sex development patient demonstrates seminiferous tubules with no ovarian stroma. This finding is consistent with testicular differentiation, thus ruling out Turner syndrome (bilateral streak gonads), pure gonadal dysgenesis (bilateral streak gonads), mixed gonadal dysgenesis (one streak gonad, one testis), and congenital adrenal hyperplasia (two ovaries). Based on the histology and the normal external female genitalia, the patient has 46 XY complete androgen insensitivity syndrome (CAIS). It is not uncommon in AIS patients for the seminiferous tubules to demonstrate a paucity of germ cells, indeed many biopsies are found to contain Sertoli cells only.

105. A 69-year-old woman has a 2.2 cm, biopsy-proven, grade 2, clear cell RCC and elects active surveillance. The next step is:
A. renal ultrasound in six months.
B. CT scan in six months.
C. CT scan in one year.
D. fluorodeoxyglucose-PET imaging.
E. repeat biopsy in one year.
ANSWER=B
The AUA Guidelines for Follow-up of Renal Masses recommends that patients undergo crosssectional abdominal scanning (CT or MRI, but not ultrasound) within six months of active surveillance initiation to establish a growth rate. The Panel further recommends continued imaging at least annually thereafter. Data on long-term growth patterns of renal masses are limited, although there is a suggestion that masses show linear growth on axial imaging rather than logarithmic. Thus, serial axial imaging as early as six months after the initiation of surveillance will establish an expected growth rate for subsequent comparison. After this initial scan, subsequent imaging, which then can include ultrasound, can be performed yearly unless the pace of growth is concerning. Fluorodeoxyglucose PET scans have no utility in staging for RCC, and there is no indication for a functional renogram study. There is no indication for repeat biopsy for surveillance of renal masses.

106. A 67-year-old man with a history of multifocal CIS is on maintenance BCG after a six- week induction course 18 months ago. He has positive voided urine cytologies with negative bilateral upper tract imaging and washings, normal appearing bladder, and normal random bladder biopsies. The next step is:
A. fluorescent in situ hybridization (FISH) testing.
B. intravesical induction mitomycin C.
C. repeat induction BCG.
D. prostatic urethral biopsy.
E. ureteroscopy with biopsy.
ANSWER=D
In patients with high-risk non-muscle-invasive disease, there is a high risk of secondary tumor involvement of the prostatic urethra and ducts. Prostatic urethral involvement may be detected in 20-40% of these patients within ten years of diagnosis. In patients with refractory disease, the incidence of extravesical recurrence in the prostatic fossa may be as high as 33%, and a substantial proportion may be fatal. In this patient, persistently positive cytologies with no clear upper tract or bladder source would warrant biopsy of the prostatic urethra to investigate the source of the abnormal cytologies. Fluorescent in situ hybridization (FISH) or other molecular markers would not provide additional information over clearly positive malignant cytology. Intravesical topical therapies, such as mitomycin or BCG, will not treat the prostatic urethra adequately and are not indicated for cytology alone diagnoses. Ureteroscopy is not indicated with negative upper tract washings.

107. A 50-year-old man has autosomal dominant polycystic kidney disease, hypertension, and normal renal function. The best medication for his hypertension is a(n):
A. alpha-blocker.
B. beta-blocker.
C. calcium channel blocker.
D. angiotensin receptor antagonist.
E. thiazide diuretic.
ANSWER=D
Hypertension is a very common presenting sign in patients with autosomal dominant polycystic kidney disease. The mechanism appears to be compression of the intrarenal vessels from the cysts causing ischemia and, thus, renin-mediated hypertension. Early recognition and treatment is important to avoid hypertensive-related renal deterioration. Because the mechanism is renin-mediated, the most logical choice in antihypertensive medication is either an ACE inhibitor or angiotensin receptor antagonist.

108. A 63-year-old man underwent a partial penectomy. Pathologic evaluation of the specimen reveals a grade 1, pT1 penile cancer without lymphovascular invasion. Physical examination reveals no palpable inguinal lymph nodes, the next step is:
A. observation.
B. bilateral superficial inguinal lymph node dissection.
C. bilateral superficial and deep inguinal lymph node dissection.
D. diagnostic sentinel node biopsy.
E. prophylactic XRT to both groins.
ANSWER=A
In a patient with a low grade pT1 penile cancer without lymphovascular invasion, the rate of inguinal metastases is < 10% and, thus, these patients should be observed. In this low risk patient, there is no indication for sentinel lymph node biopsy, prophylactic radiation, or lymphadenectomy. In general, bilateral inguinal lymphadenectomy is reserved for patients with pT2 or high-grade disease. In addition, consideration for immediate bilateral prophylactic node dissection can be given for low grade pT1 tumors that harbor findings that are highly indicative of occult metastasis, such as lymphovascular invasion. It is noteworthy that in the setting of palpable lymph nodes, antibiotics administration and delayed reassessment is not indicated if there are clinical indications for proceeding with a lymph node dissection, namely pH high grade or pT2 or greater tumors.

109. The form of testosterone most commonly associated with erythrocytosis and an increased risk of thrombotic events is:
A. topical gel.
B. transdermal patch,
C. oral.
D. sublingual.
E. intramuscular injection.
ANSWER=E
Testosterone stimulates erythropoiesis with a direct correlation between hemoglobin and hematocrit levels and testosterone levels. Injection of testosterone is associated with higher potential for secondary erythrocytosis than topical or oral preparations. High levels of testosterone are associated with polycythemia (hematocrit over 51%). Due to the increased risk of clotting complications with an elevated hematocrit, it is recommended that the testosterone dose is adjusted and/or periodic phlebotomy be performed to keep the hematocrit below 52-55%. All patients placed on testosterone should have periodic CBC assessments with the initial evaluation for erythrocytosis occurring three months following initiation of treatment.

110. A ten-year-old boy has persistent dysuria. Serial urinalysis reveals a pH of 7.2, specific gravity of 1.025, protein is negative, 0-2 WBC/hpf, 20-30 RBC/hpf, and a negative urine culture. A renal bladder ultrasound and a VCUG are normal. The diagnosis is best made by:

A. KUB.
B. serum calcium-to-creatinine ratio.
C. 24-hour urinary calcium collection.
D. CT scan,
E. renal biopsy
ANSWER=C

This boy has a typical presentation for hypercalciuria. The diagnosis is best made by a 24-hour urine collection with calcium excretion exceeding 4 mg/kg/day being diagnostic. Often, a urinalysis will reveal a high specific gravity > 1.020 and an abnormal spot urine calcium-tocreatinine ratio (> 0.21). Although these findings are helpful to prove dehydration and hypercalciuria as a cause of the dysuria, the best true diagnostic assay is the 24-hour urinecollection checking for both 24-hour urinary volume and calcium excretion. Patients with documented hypercalciuria and low urinary volume are at higher risk for urolithiasis. Treatment should be with liberalization of fluids and repeat urine assessment. Identification of calculus disease via plain x-ray or CT scan would not be diagnostic of hypercalciuria and, in view of the normal ultrasound, would place the patient at needless risk of radiation exposure. In the absence of proteinuria, there is no need for renal biopsy.

111. A 58-year-old man has asymptomatic non-metastatic castration-resistant prostate cancer demonstrated by a rising PSA on LH-RH agonist therapy. The next step is:

A. observation.
B. bicalutamide.
C. sipuleucel-T.
D. abiraterone and prednisone.
E. enzalutamide.
ANSWER=A

This patient represents index patient 1 in the AUA Guideline for Castration-Resistant Prostate Cancer (CRPC). The guidelines make a primary recommendation for observation for this patient. The guidelines also make the recommendation that clinicians should not offer systemic chemotherapy or immunotherapy to patients with non-metastatic CRPC outside the context of a clinical trial, thus, making the use of sipuleucel-T, abiraterone with prednisone, and enzalutamide incorrect in this patient. As an option, the guidelines state that clinicians may offer treatment with first- generation anti-androgens (flutamide, bicalutamide and nilutamide) or first generation androgen synthesis inhibitors (ketoconazole with prednisone) to select patients with non-metastatic CRPC who are unwilling to accept observation. However, given the lack of data suggesting any clinical benefit and given the potential side effects of therapy, the panel only recommended the use of anti-androgens in this patient population only if patients are unwilling to accept the recommendation of observation. There is no statement that this patient is unwilling to accept observation, and, accordingly, observation should be the initial step and recommendation.

112. A 35-year-old man with Crohn's disease and recurrent calcium oxalate stone formation should be counseled to restrict intake of dietary oxalate and:

A. restrict intake of animal protein.
B. restrict intake of omega-3 fatty acids.
C. increase intake of calcium.
D. increase intake of pyridoxine.
E. initiate cholestyramine therapy.
ANSWER=C

Urinary oxalate is modulated by calcium intake which influences intestinal oxalate absorption. Large cohort studies have demonstrated an increased risk of stone formation with lower calcium diets and have also found that diets higher in calcium are associated with reduced oxalate excretion. Of note, patients with enteric hyperoxaluria and high levels of urinary oxalate, such as those with malabsorptive conditions (e.g., inflammatory bowel disease or Roux-en-Y gastric bypass), may benefit from more restrictive oxalate diets as well as from higher calcium intakes, which may include supplements, specifically timed with meals. In such cases, calcium will serve as an oxalate binder so that a significant proportion will appear in the stool. However, 24-hour urine monitoring can be used to ensure that hypercalciuria does not result. Animal protein restriction is not correct as that recommendation would be most appropriate for those with hyperuricosuria. A role for nutritional supplements, such as, omega-3 fatty acids, pyridoxine, and cholestyramine has been suggested, but at present the evidence is not sufficient to guide recommendations.

113. A 63-year-old man has partial penectomy for squamous cell carcinoma invading the glans penis (pT2). Pelvic CT scan demonstrates a 1.5 cm right inguinal lymph node that cannot be palpated. The next step is:

A. antibiotics and repeat CT scan in six weeks.
B. CT-guided aspiration of the suspicious node,
C. right sentinel node biopsy,
D. right inguinal node dissection,
E. bilateral inguinal node dissection.
ANSWER=E

This patient has pathologic stage T2 disease and is at high risk for occult inguinal node metastases. Regardless of inguinal lymph node status (palpable or not), these patients should undergo inguinal lymph node dissection. In this setting, antibiotics decrease the risk of inguinal wound infection, but response of lymph nodes to antibiotic treatment should not influence the decision for surgical staging. Whether inguinal nodes are palpable unilaterally or not palpable, bilateral inguinal node dissection is indicated. In this case, superficial inguinal dissection is indicated on the left and superficial and deep dissection on the right.

114. An 18-year-old man with primary nocturnal enuresis is managed with oral DDAVP 0.6 mg/day. He has worsening nocturnal enuresis after starting college and increases his dose to 1 mg every night. He presents for a follow-up examination requesting another prescription for DDAVP. He is asymptomatic and a routine check of his serum sodium reveals a value of 129mEq/l. After withdrawing the DDAVP, the next step is:

A. water restriction.
B. oral furosemide.
C. oral sodium bicarbonate.
D. I.V. 0.5 NS and furosemide.
E. I.V. 3% hypertonic saline and furosemide.
ANSWER=A

This patient has hyponatremia due to SIADH from self-medicating with DDAVP. He has a chronic condition (> 48 hours) with no symptoms and modest hyponatremia that can be corrected slowly over time. Removing the inciting agent (DDAVP) together with water restriction would be the optimal treatment. In the absence of symptoms, the addition of diuretics and saline replacement are not necessary. There is no role for oral sodium bicarbonate in this setting.

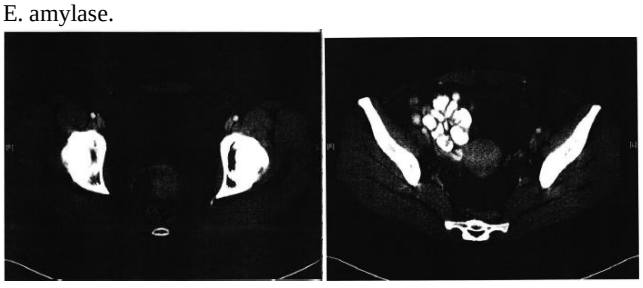
115. A 65-year-old woman has recurrent metastatic RCC after undergoing radical nephrectomy for a pT4 papillary RCC. She has poor prognostic features by Memorial Sloan Kettering risk criteria. The next step is:

A. interleukin-2.
B. bevacizumab.
C. sorafenib.
D. temsirolimus.
E. pazopanib.
ANSWER=D
The patient has advanced RCC with predominantly non-clear cell histology. Additionally, she is now presenting with poor prognostic features. Prognostic scoring systems have been developed in advanced RCC and have been shown to have important correlations to response to therapies and to overall survival. The most commonly used prognostic model is from the Memorial Sloan Kettering Cancer Center and includes performance status, serum LDH, serumcalcium, hemoglobin, and interval from diagnosis to treatment. Although the majority of clinical trials have focused on patients with clear cell histologies, data exists indicating that targeted therapies may have benefits in patients with non-clear cell histologies. According to the NCCN Kidney Cancer Panel, temsirolimus is a category 1 recommendation for the treatment of patients with non-clear cell histology and poor prognostic features. These recommendations by the panel are based primarily on the retrospective analysis of the global ARCC trial which evaluated temsirolimus in both clear cell and non-clear cell patients. In fact, this is one of the only phase III trials that included patients with non-clear cell histologies. Tyrosine kinase inhibitors (TKIs) (sunitinib, sorafenib) have been shown to have some effect in phase II trials in non-clear cell patients and are both are a category 2A recommendation by the NCCN panel. There are ongoing trials examining the potential benefits of pazopanib and axitinib as first-line therapies in non-clear cell patients, but data are limited and both drugs receive a category 2A recommendation based on extrapolation of results from other TKIs. Bevacizumab has been studied in a small phase II study of papillary renal cell carcinoma patients but the study was closed early due to slow accrual. The NCCN guideline panel has provided a category 2A recommendation for bevacizumab in these patients. The use of cytokine therapies (interferon and IL-2) have not been shown to have significant benefits in non-clear cell patients. In the aforementioned ARCC trial, temsirolimus was compared to interferon-alpha. Overall survival was significantly better in the temsirolimus subgroup, thereby, justifying the recommendation of temsirolimus. Interferon is not recommended by the NCCN panel.

116. The antibiotic of choice for a three-week-old girl with a febrile UTI and mild jaundice is:
A. ampicillm.
B. ceftriaxone.
C. trimethoprim-sulfamethoxazole.
D. nitrofurantoin.
E. ciprofloxacin.
ANSWER=A
Neonates and young infants should be covered for Enterococcus species when choosing empiric antibiotics since the incidence of infections with this uropathogen is higher in early infancy than at a later age. Enterococcus is frequently sensitive to ampicillin and first generation cephalosporins. Ceftriaxone and trimethoprim-sulfamethoxazole are specifically contraindicated in neonates with jaundice. Nitrofurantoin would not provide systemic treatment and is both contraindicated in infants with jaundice and in infants less than one month of age due to an increased risk for hemolytic anemia arising from the interactions of an immature liver and the medication. Ciprofloxacin typically would not cover the most common infecting organism, enterococcus, and is contraindicated in this age group.

117. A 25-year-old man is referred from the drug and alcohol rehabilitation center. He complains of severe diurnal and nocturnal urinary urgency, frequency, and intermittent gross hematuria. Urine culture is negative. CT urogram reveals a small thick-walled bladder but is otherwise unremarkable. Cystoscopy reveals multiple glomerulations and petechial hemorrhages and no Hunner's lesions. Bladder biopsy shows severe inflammation and epithelial denudation. The most likely etiology is:
A. ketamine abuse.
B. genitourinary tuberculosis.
C. malacoplakia.
D. herpes simplex virus.
E. cytomegalovirus.
ANSWER=A
Ketamine (also known as: K, Special K, Vitamin K, green, and jet) is a tranquilizer that will induce a trance-like state while providing pain relief, sedation, and memory loss. Heart rate, respiratory function, and airway reflexes will remain functional. Ketamine is most commonly used for pain relief in emergency rooms and intensive care units and/or sedation at the time of anesthetic induction. Beginning in the late 1990's, it has gained popularity as a street drug and has quickly outgrown heroin and methamphetamine as the drug of choice in many parts of the world due to its low cost and easy accessibility. Ketamine has joined the ranks of PCP, Ecstasy (MDMA), GHB (Gamma Hydroxybutyrate), and Rohypnol as popular club drugs. It is frequently mixed with Rhobypnol or GHB to create the “date rape" drug. Ketamine, when used alone, will give a floating out of the body sensation combined with a mild hallucinogenic effect. Within the United States, 1-2% of individuals < 21 years of age admit to having tried ketamine and 10% of these individuals will become habitual users. Ketamine is currently the leading street drug used in Hong Kong and other parts of Asia. Indeed, drug and alcohol rehabilitation clinics within Hong Kong and other select Asian locations have found up to 80% of the individuals admitted for rehabilitation to be abusing the medication. Urologists should be aware that the chronic use of ketamine will induce ketamine cystitis. Symptoms, cystoscopic, and biopsy findings are highly consistent with non-Hunner's interstitial cystitis, and without the proper history, distinction between the two diagnoses is almost impossible. Ketamine cystitis will usually lead to a severely fibrotic end-stage bladder that will result in the need for cystectomy. There are, however, successful case reports where the fibrosis has been halted or reversed by the use of intravesical chondroitin sulphate or hyaluronic acid. Tuberculosis of the bladder occurs secondary to tuberculosis of the kidney, and, therefore, upper tract abnormalities would be expected on CT scan. Malacoplakia typically manifests as mucosal plaques or nodules with bladder biopsy demonstrating Michaelis-Gutman bodies. Herpes simplex virus infection causes painful ulcers of the genitalia typically without bladder involvement. Cytomegalovirus may cause hematuria and urinary symptoms but only in immunocompromised individuals.

118. A 25-year-old woman has mild abdominal pain and distension two weeks after left laparoscopic donor nephrectomy. She is afebrile with normal vital signs. CT scan is shown. Paracentesis is most likely to show elevated:
A. bacteria.
B. RBCS.
C. creatinine.
D. triglycerides.
E. amylase.



ANSWER=D
The clinical presentation and CT scan is highly consistent with chylous ascites. Patients with postoperative chylous ascites classically have abdominal distention without significant pain or fevers and will have normal bowel habits. This complication results from disruption of the major para-aortic lymphatics channels leading to the cisterna chyli and is predominantly noted after left-sided procedures (i.e., radical and donor nephrectomy) or retroperitoneal lymphadenectomy. Chylous ascites is diagnosed by paracentesis with ascitic fluid found to have classically white and turbid appearance with fluid analysis showing elevated lymphocytes, associated with a high cholesterol and triglyceride content. Initial treatment is to reduce the flow of chyle into the lymphatics by a low-fat medium-chain triglyceride diet. If chylous ascites persist despite dietary management, the next step should involve bowel rest and the institution of total parenteral nutrition with the concurrent use of octreotide, a somatostatin analog. Somatostatin has been documented to significantly decrease postprandial increases in triglyceride levels by inhibiting lymphatic flow. Open or laparoscopic treatment of chylous ascites, using suture ligation and fibrin glue to control the leak, can be pursued if conservative management fails. Intraoperative location of the lymphatic leakage can be challenging and the combined use of preoperative lymphangiography and consumption of “fatty" meal immediately before surgery has been documented to be beneficial in helping the surgeon locate the site of the leak.

119. A 68-year-old man with a history of superficial bladder cancer develops a severe anaphylactic reaction while undergoing surveillance flexible cystoscopy. The most likely causative agent is:
A. glutaraldehyde.
B. ortho-phthalaldehyde (OPA).
C. peracetic acid.
D. hydrogen peroxide.
E. ethylene oxide.
ANSWER=B
All of the substances listed may be used to disinfect flexible cystoscopies. Orthophthalaldehyde (OPA), however, is the only one associated with anaphylactic reactions following repeated patient exposure. Consequently, it is recommended that OPA not be used to sterilize cystoscopies in patients requiring repetitive cystoscopy such as a patient with a history of bladder cancer.

120. A 43-year-old woman with autosomal dominant polycystic kidney disease has fever and left flank pain. She is treated with ciprofloxacin but after four days she remains febrile. A ČT scan demonstrates that one of the cysts in the left kidney is 7 cm in diameter and has a thickened wall which enhances after contrast administration. Her serum creatinine is 1.2 mg/dl and her current urinalysis is within normal limits. The next step is:
A. continue treatment.
B. add gentamicin.
C. add vancomycin.
D. percutaneous cyst drainage.
E. partial nephrectomy.
ANSWER=D
Patients with autosomal dominant polycystic kidney disease can develop cyst infections. Symptoms and signs may include fever and flank or abdominal pain with normal urinalysis and sterile urine cultures. Therapy with lipid soluble antibiotics such as a fluoroquinolone agent is indicated if this diagnosis is suspected. Patients should defervesce within 72 hours. Persistent symptoms should prompt an abdominal CT scan to seek for infected cysts. Studies have shown that symptomatic infected cysts are typically larger than neighboring cysts, have thickened walls, are of higher attenuation, and enhance after contrast administration. This patient has not responded to appropriate antibiotic therapy. Therefore, the cyst should be drained and a percutaneous approach is preferred. Partial or simple nephrectomy is not indicated nor are additional antibiotics. A tagged indium-111 WBC scan can help localize the infection in patients without a dominant infected appearing cyst on CT scan.

121. A 35-year-old paraplegic man on CIC is referred for recurrent UTIs. Review of the] patient history reveals that these are asymptomatic in nature and diagnosed by the) family physician obtaining intermittent urine cultures. All cultures are positive for E. coli. CT urogram and cystoscopy are unremarkable. The next step is:
A. observation.
B. change to antibiotic-coated catheters.
C. sterile CIC.
D. suppressive antibiotics.
E. gentamicin bladder irrigation.
ANSWER=A
The finding of asymptomatic bacteriuria in patients on CIC has been reported to occur in up to 50% of individuals. Treatment in asymptomatic individuals is not required; in fact, treatment will predispose these patients to develop resistant organisms and significantly increases the risk for Clostridium difficile colitis. Changing to antibiotic coated catheters or sterile CIC are not indicated in this setting.

122. A 44-year-old woman with an InterStim Il ™, sacral neuromodulation device, needs to undergo an MRI scan of the brain. The next step is:
A. proceed with MRI scan.
B. reprogram battery to MRI compatible setting.
C. remove lead.
D. remove battery.
E. remove lead and battery.
ANSWER=A
Performance of an MRI scan in patients with a sacral neuromodulation device in-situ has been considered to be a potential hazard secondary to the interaction of the MRI magnet with the metal leads or implanted pulse generator (IPG). Specifically, there is concern that this interaction could result in tissue damage arising from motion, dislocation or torquing of the implanted pulse generator (IPG), heating of the leads, and/or permanent damage to the IPG. In April 2012, the FDA approved the use of head (brain) MRI scans in patients implanted with the newer (InterStim II) IPG, the latter stimulation device has been in use since 2007. Since a head MRI scan is needed, this patient can proceed with the MRI scan. The physician should be aware that an FDA warning still exists regarding performing an MRI scan of the spine in the setting of an implanted neurostim device and removal of the sacral neuromodulation device maybe requested by the radiologist prior to performing the study. However, multiple studies currently exist that document that a 1.5 Tesla MRI scan of the spine may be safely performed provided the sacral neuromodulation is out of the isocenter of the MRI scanner (remote site). To date, multiple patients positioned with the IPG outside of the magnet bore have undergone remote site MRI with minimal or no complications reported in 97% of the patients. Complications, when they occurred, were device-related problems, such as malfunction or failure, with minimal to no patient-related problems. Most radiologists now consider remote site MRI scan of the spine to be a safe option following implantation of an InterStim II device.

123. A 78-year-old man undergoes an artificial urinary sphincter for severe stress urinary incontinence following radical prostatectomy and adjuvant radiation treatment for

prostate cancer. He has a 4 cm cuff placed around the distal bulbar urethra. The risk factor which places him at highest risk for urethral erosion is:

A. age.
B. cuff size.
C. cuff location.
D. pelvic radiation exposure.
E. history of radical prostatectomy.

ANSWER=D

Urethral erosion is a devastating complication of artificial urinary sphincter (AUS) placement which requires explantation. Patients classified as high risk for cuff erosion following AUS placement are defined as patients that have undergone: radiation therapy, a prior urethroplasty, multiple endoscopic treatments for bladder neck contracture or urethral stricture, prior urethral stent placement, or have a history of erosion or infection in a previous AUS. There is also a much lower but still significant increased risk of erosion with a prolonged postoperative catheterization interval (> 48 hours), or use of either a 3.5 cm or transcorporal cuff compared to a standard 4 cm cuff. No increased risk of erosion has been found related to age, proximal or distal bulbar urethral placement of the AUS, or prior radical prostatectomy.

124. A significant limitation of CT imaging for renal trauma is an inability to fully assess a:

A. renal pelvis injury.
B. renal vein injury.
C. renal artery injury.
D. parenchymal laceration < 1 cm.
E. renal contusion.

ANSWER=B

CT scan remains the gold standard for radiologic staging of renal trauma. One major limitation of CT scan, however, is the inability to define a renal venous injury adequately. A medial hematoma strongly suggests a venous injury, however, there is no imaging modality which can accurately diagnose a venous injury. A renal contusion is defined as normal urologic imaging with the presence of hematuria. Parenchymal lacerations are clearly defined, and extravasation of contrast-enhanced urine can easily be detected which has led to an enhanced ability to manage many injuries non-operatively. Repeated/delayed scanning of the kidneys ten minutes after injection of contrast identifies parenchymal lacerations and urinary extravasation accurately and reliably. It is important to note that ureteral injuries can be difficult to diagnose on CT scan. If the urinary extravasation from the ureteral injury is contained by Gerota's fascia, the extent of medial leakage can be minimal. It is also known that ureteral injuries do not show contrast in the ureter on delayed images. Tracing both ureters throughout their entire course on a CT scan is mandatory to fully evaluate urogenital injuries. Delayed images should be obtained 5 to 20 minutes after contrast injection to allow contrast to extravasate from the collecting system injury.

125. An FDA approved clinical trial for placement of a sacral nerve stimulation device, exists for which clinical scenario:

A. medication resistant urinary incontinence secondary to multiple sclerosis.
B. bladder underactivity following a spinal cord injury.
C. bladder underactivity following pelvic surgery such as a low anterior resection or hysterectomy.
D. chronic prostatitis - pelvic pain failing traditional treatment modalities.
E. medical refractory urinary and fecal incontinence associated with spina bifida.

ANSWER=D

Sacral nerve stimulation (SNS) has FDA approval for treatment of: non-obstructive urinary retention, urinary urge incontinence, urinary urgency-frequency syndrome, and for the gastrointestinal indication of chronic fecal incontinence. Clinical trials are ongoing for its use in interstitial cystitis, chronic prostatitis (i.e., chronic pelvic pain), and idiopathic constipation failing traditional treatment modalities. It has not been cleared by the FDA to be used in patients with urologic or gastrointestinal symptoms arising from a known neuropathy, such as multiple sclerosis, Parkinson's disease, a congenital neuropathic anomaly, post-traumatic spinal cord injury, and/or pelvic nerve injury arising from pelvic surgery.

126. A 48-year-old man has undergone extensive penile skin debridement secondary to Fournier's gangrene. Reconstruction for the penile shaft should include the use of a(n):

A. local skin flap.
B. meshed split thickness skin graft.
C. unmeshed split thickness skin graft.
D. meshed full thickness skin graft.
E. unmeshed full thickness skin graft.

ANSWER=C

The highest probability of 100% graft take and best cosmetic results occur with penile skin reconstruction using an unmeshed thick (0.012 - 0.015 inch) split thickness skin (STS) graft. Meshed or thinner STS grafts have more of a tendency to contract which compromises penile functionality and cosmesis. Local skin flaps from the abdomen or thigh generally do not produce the same cosmetic outcomes. Full thickness skin grafts may provide adequate cosmesis but are associated with a higher incidence of failure of the graft to take.

127. Prior to surgery for uncomplicated stress incontinence in women, urodynamics is:

A. necessary for all patients having sling surgery.
B. useful in determining which type of sling procedure (transobturator versus retropubic) to perform.
C. useful in determining prognosis following sling surgery.
D. able to determine prognosis following an autologous fascia sling only.
E. no better than a basic office evaluation in determining surgical outcomes.

ANSWER=E

The VALUE trial assessed the utility of urodynamics versus basic office evaluation in the uncomplicated patient with stress incontinence (SUI). Uncomplicated patients with SUI are those with demonstrable SUI on physical exam, no overactive bladder symptoms, normal bladder emptying, no prior surgery for SUI, and no signs, symptoms, or past medical history consistent with a possible neurologic etiology for their urinary incontinence. This study documented that within the uncomplicated patient population, the addition of urodynamic studies did not improve the surgical outcome following incontinence surgery compared to women who had a basic office evaluation alone. A basic office evaluation includes a pelvic exam with supine stress test with a full bladder, assessment of PVR, and urinalysis.

128. While mobilizing the spleen during a left laparoscopic adrenalectomy, a 1.5 cm diaphragmatic injury is noted with entry into the pleural cavity. The patient remains hemodynamically stable. The next step is:

A. pack defect, decrease insufflation pressure, and continue operation.
B. place chest tube in the second anterior intercostal space and continue operation.
C. repair diaphragm laparoscopically, aspirate pleural cavity, and continue operation.
D. continue procedure and repair diaphragm through specimen extraction site.

E. convert to open surgery, repair diaphragm, and complete adrenalectomy.
ANSWER=C
Diaphragmatic injury is a rare complication of laparoscopic upper tract urinary surgery. It is important to note that this injury has occurred early in the operation in a stable patient. The injury is large enough that it must be repaired and placement of a chest tube to vent the pleural cavity alone would be inadequate treatment and could result in persistent loss of the pneumoperitoneum and/or inadequate pulmonary re-expansion. There is no need for open conversion; the injury can be repaired laparoscopically with aspiration of air from the pleural cavity and continuation of the operation. Placement of a chest tube is not routinely necessary following surgical repair. Packing the diaphragmatic injury or repairing the injury at the end of the operation risks continued filling of the pleural cavity with carbon dioxide leading to poor ventilation and high peak airway pressures.

129. While using an argon beam electrocoagulator during a laparoscopic partial nephrectomy, poor tidal volumes are noted. The next step is:
A. obtain deeper sedation.
B. increase ventilation rate.
C. add positive end-expiratory pressure (PEEP).
D. decrease CO2 insufflation flow rate.
E. release pneumoperitoneum.
ANSWER=E
During use of the argon beam electrocoagulator in a laparoscopic setting, it is important to "vent" from one of the trocar side arm ports during its use in order to avoid over-pressurizing the abdomen with the infused argon gas. If unrecognized, this can cause an abrupt increase in intra-abdominal pressure and eventual compromise of ventilation. All other listed maneuvers and ventilatory changes would not address the primary problem of increased intraperitoneal pressure.

130. When compared to women undergoing a retropubic mid-urethral sling, women undergoing transobturator slings are more likely to experience:
A. improved continence.
B. UTIS.
C. urinary retention.
D. bladder perforations.
E. neurologic complications.
ANSWER=E
The TOMUS trial compared the outcomes of retropubic sling to transobturator mid-urethral slings for treatment of stress urinary incontinence. In the original trial, success rates were statistically equivalent between the two groups. However, in long-term analysis (one versus five years), several differences were noted. Specifically, transobturator sling patients were more likely to manifest neurologic complications. It is believed these complications arose due to injury of small nerve branches from either the pudendal or obturator nerves occurring either at the time of trocar passage or alternatively due to long-term compression of the nerves from the obturator sling. Transobturator slings were also statistically less effective in preventing long-term urinary incontinence compared to retropubic urethral slings. Patients undergoing a retropubic urethral sling, however, had more bladder dysfunction, including higher postvoid residual urines, increased incidence of recurrent UTIs, and increased risk of delayed sling erosion into the bladder compared to patients undergoing a transobturator sling.

131. A ten-month-old boy has persistent right hydroureteronephrosis with a negative VCUG. The right kidney contributes 35% of the total renal function and the T 1/2 is 30 minutes on MAG-3 renal scan after diuretic. The next step is antibiotic prophylaxis and:
A. observation with repeat MAG-3 diuretic scan in one year.
B. percutaneous nephrostomy.
C. creation of a freely refluxing ureterovesical junction.
D. distal end cutaneous ureterostomy.
E. tapered ureteral reimplantation.
ANSWER=E
This child has a primary obstructive megaureter associated with diminished renal function. Although many children with a primary obstructive megaureter will show gradual progressive improvement in the degree of dilation and rapidity of washout with age, the decision to observe without surgical intervention is dependent upon the renal function and the absence of symptoms. In the presence of significantly impaired function (differential function of < 40%), surgical intervention is indicated. Since the child is otherwise healthy and uninfected, primary reconstruction with a tapered ureteral reimplantation is the method of choice. Temporary diversion by a distal cutaneous ureterostomy or alternatively creation of a widely refluxing ureterovesical junction may be considered in the presence of extremely poor renal function and or a premature or young, less than six- to eight-month-old infant, where a tapered reimplantation may be technically challenging. Placement of a percutaneous nephrostomy tube is mainly used in the severely ill infant with a severe urinary infection who is not responding to parenteral antibacterials.

132. A 71-year-old woman has persistent bothersome stress incontinence six months following a transobturator mid-urethral sling. Videourodynamics show a Valsalva LPP of 55 cm H2O with minimal urethral mobility and an open bladder neck at rest. The next step is:
A. neurology evaluation.
B. Kegel exercises.
C. radiofrequency of bladder neck suspension.
D. autologous fascia sling.
E. artificial urinary sphincter.
ANSWER=D
This patient has minimal urethral mobility with stress maneuvers and a low abdominal LPP consistent with intrinsic sphincter deficiency (LPP < 60 cm H20). The treatment of choice with persistent incontinence secondary to intrinsic sphincter deficiency following a failed sling procedure is placement of an autologous rectus fascia sling. In and of itself, the postoperative findings of an open bladder neck on a videourodynamic study is not suggestive of a neurologic disorder (such as Shy-Drager syndrome). A neurologic consultation is, therefore, not indicated unless concurrent neurologic findings are present. Kegel exercises in a postoperative patient with these urodynamic findings would be of extremely limited benefit. Radiofrequency bladder neck suspension has not been shown to be of significant benefit in patients with recurrent stress incontinence following surgical repair and/or in patients with intrinsic sphincter deficiency (Valsalva LPP < 60 cm H20). Artificial urinary sphincter placement may be considered an option but should be considered only after the patient had failed an autologous fascial sling.

133. A 55-year-old woman with multiple sclerosis has worsening urinary incontinence three weeks after undergoing an onabotulinumtoxinA injection. The next step is:
A. start an antimuscarinic.
B. obtain a PVR.
C. perform a complete urodynamic study.
D. repeat onabotulinumtoxinA with higher dose.
E. initiate sacral neuromodulation.
ANSWER=B
Approximately 5% of patients undergoing bladder onabotulinumtoxinA injections may develop urinary retention.

Accordingly, patients with worsening urinary incontinence post-injection should undergo a PVR assessment to rule-out overflow incontinence. Antimuscarinics would not be advisable if her residual were high. Urodynamics would be premature at this early stage after injection. Repeating onabotulinumtoxinA injections may be an option at some point if she is not retaining urine. Sacral neuromodulation, while an option, is not recommended in the presence of known neurologic conditions and would only be considered after an elevated residual has been ruled-out.

134. A healthy 26-year-old man undergoes urethroplasty with buccal mucosa for a 5 cm bulbar urethral stricture. The most common form of sexual dysfunction he may experience postoperatively is:

A. loss of libido.
B. erectile dysfunction.
C. ejaculatory dysfunction.
D. anorgasmia.
E. penile curvature.
ANSWER=C

Permanent ejaculatory dysfunction may occur in as high as 20% of men following urethroplasty. Complaints are usually related to pooling of semen within the urethra and/or loss of force with ejaculation. The etiology is poorly defined but is presumed to be due to either tortuosity of the neourethra and/or dysfunction of the bulbocavernosal muscle. Temporary erectile dysfunction is found in up to 20% of individuals undergoing an anterior urethroplasty. This incidence is similar between all types of anterior urethroplasties, e.g., excision and primary anastomosis, vascularized or graft urethroplasties. The erectile dysfunction symptoms classically resolve within six months with < 3-4% of patients reporting a permanent alteration in their erectile capabilities. New onset of penile curvature may occur usually following an overaggressive attempt at excision and primary anastomosis performed in the distal bulbar region. Loss of libido and anorgasmia are very rare complaints following urethroplasty and are predominately due to a psychological component.

135. Treatment with tadalafil 5 mg daily for the signs and symptoms of BPH and erectile dysfunction may result in improvements in:

A. urinary flow rates and International Prostate Symptom Score (IPSS).
B. urinary flow rates and International Index of Erectile Function (IIEF).
C. IPSS and IIEF score.
D. IPSS if baseline evaluation score is > 18.
E. IIEF if baseline evaluation score is < 12.
ANSWER=C

Daily tadalafil is FDA approved for the signs and symptoms of BPH and erectile dysfunction. Improvements may be seen with both erectile dysfunction and urinary symptom scores such as the International Prostate Symptom Score (IPSS). Use of once daily tadalafil (or other phosphodiesterase inhibitors) does not improve urinary flow rates. There is no evidence that a certain degree of baseline bother, as measured by the IPSS or International Index of Erectile Function (IIEF), are necessary to predict success with this therapy. In addition, there is evidence that suggests that combination therapy with phosphodiesterase inhibitors and alphablockers work together synergistically; however, this combination may also result in symptomatic hypotension. Phosphodiesterase inhibitors are not presently part of the AUA Guidelines for the Management of BPH.

136. A 31-year-old man desires a biological child. His physical exam is normal with 30 ml testes. He is azoospermic and has a semen volume of 3.5 ml with a pH of 7.6. His FSH is 3.6 IU/I. The next step is:

A. clomiphene citrate.
B. seminal fructose level.
C. post-ejaculate urine.
D. transrectal ultrasound.
E. testicular biopsy with sperm retrieval.
ANSWER=E

This patient has normal seminal volume and normal seminal pH. This rules out ejaculatory duct obstruction or congenital bilateral absence of the vas (CBAVD) which are both associated with low volume, acidic semen specimens. A low normal FSH of 3.6 mlU/ml indicates spermatogenesis is likely intact and that obstructive azoospermia is present. A testicular biopsy is warranted during which sperm retrieval and cryopreservation should be considered. If the testicular biopsy is normal, then a post-testicular obstruction is present and either an epididymovasostomy or a vasovasostomy can be performed at the time of biopsy. Clomiphene will increase serum FSH but will not correct obstructive azoospermia. Seminal fructose is absent in ejaculatory duct obstruction or CBAVD. A transrectal ultrasound is not indicated because seminal volume is normal. Post-ejaculate urine analyses are useful in cases of low volume semen specimens or cases with dry ejaculates to rule out retrograde ejaculation.

137. A 67-year-old man has erectile dysfunction after a myocardial infarction four months ago. He has retinitis pigmentosa and takes clopidogrel (Plavix). His testosterone is 195 ng/dl. The next step is:

A. sildenafil 100 mg on demand.
B. daily tadalafil 5 mg.
C. daily testosterone gel.
D. intracavernous prostaglandin injection.
E. intraurethral alprostadil suppository.
ANSWER=E

An FDA warning exists that recommends against the use of phosphodiesterase type 5 inhibitors in patients with a recent history of a myocardial infarction (less than six months) and in patients with known hereditary degenerative retinal disorders such as retinitis pigmentosa. Thus, the use of tadalafil or sildenafil in this patient would not be advised. Testosterone therapy is not considered first-line therapy for erectile dysfunction. Intracavernous injection is relatively contraindicated in men with a history of coagulopathy (clopidogrel) or unstable cardiovascular disease and thus would not be a good option for this patient. The best option for this patient would be intraurethral alprostadil suppository.

138. A 43-year-old asymptomatic woman returns three days after an uncomplicated outpatient vaginal sling surgery with a vaginal pack still in place. The next step is to remove vaginal pack and:

A. administer I.V. antibiotics.
B. call your malpractice insurer.
C. notify the insurer of the outpatient surgical center.
D. notify Joint Commission of Health (JCAHO).
E. report as a SERS (serious event reporting system) event
ANSWER=E

Retention of vaginal packs for > 24 hours post-surgery does place the patient at risk for toxic shock syndrome, however, antibiotic therapy is not indicated in an asymptomatic patient. In the clinical situation described, treatment should be with outpatient observation of the individual and with notification of the hospital SERS (Serious Event Reviews System) program. This system will review the process by which this complication occurred and recommend steps to prevent its recurrence. The Joint Commission on the Accreditation of Health Care Organizations (JCAHC) is a national association existing since 1951 that accredits and certifies more than 20,000 health care organizations and programs in the United States. Joint Commission accreditation and certification is performed to

verify that the health care organization undergoing review meets or exceeds current national standards of care, and is recognized nationwide as a symbol of quality. Accreditation is necessary for financial reimbursement of the institution by select insurers and other third parties and may be required in select states to care for patients JACHO recognizes and rewards hospitals for running quality improvement projects, such as SERS, but does not establish or maintain the quality improve project; the latter is a function of the individual hospital or surgical center involved. There is no need to notify your malpractice insurer or the insurer of the outpatient surgical center regarding this finding unless a serious consequence of its action should occur or comments from the patient are a concern.

139. A 63-year-old man with idiopathic thrombocytopenic purpura (ITP) requires pelvic exenteration. His platelet count prior to surgery was 50,000/cu mm. Venous thromboembolic prophylaxis should consist of:

A. oral low dose aspirin,
B. oral warfarin.
C. oral pentoxifylline (Trental™).
D. subcutaneous heparin,
E. subcutaneous enoxaparin (Lovenox™).
ANSWER=D

This patient is at high risk for venous thromboembolic event (VTE) because of his cancer diagnosis, age, surgery, and prolonged immobility. Thus, guidelines indicate the need for full precautions. His idiopathic thrombocytopenic purpura may put him at increased risk of perioperative bleeding, but does not protect him from the risk of VTE. Thus, subcutaneous heparin is the standard prophylaxis, although it should be used cautiously in patients with severe thrombocytopenia, Enoxaparin should be used only with extreme caution in patients with thrombocytopenia. In either case, close monitoring of the platelet count is indicated to detect any heparin-induced thrombocytopenia. Warfarin does not provide immediate protection, and is, therefore, reserved for long-term anticoagulation. Pentoxifylline has not been shown to prevent VTE.

140. Radiofrequency renal artery denervation for the treatment of medically refractory hypertension causes a(n):

A. increase in plasma renin activity,
B. decrease in renal blood flow,
C. increase in renal efferent arterial tone,
D. decrease in sympathetic activity,
E. increase in parasympathetic activity.
ANSWER=D

Endovascular radiofrequency ablation (RFA) of the renal artery results in destruction of the renal sympathetics and is being increasingly utilized for management of pharmacologically resistant hypertension. Sympathetic innervation to the kidneys run in the adventitial wall of the renal arteries. Stimulation of the renal sympathetics results in a decrease in renal blood flow, an increase in renin secretion, retention of sodium and water, and hypertension. Circumferential RFA of the renal sympathetics occurs by introduction of a 6 Fr catheter by the femoral vein; the therapeutic catheter has a steerable tip and is connected to a console that delivers radiofrequency energy. The level of energy delivered is monitored with a sensor at the tip of the catheter so that excessive tissue injury is avoided. Ablation of the renal sympathetics results in dilation of the renal efferent arteries, decreased plasma renin activity, and increased renal blood flow. In addition, it is postulated that renal artery sympathetic ablation results in stimulating an inhibitory regulatory feedback mechanism that decreases the overall sympathetic outflow. Renal artery RFA has no effect on parasympathetic nerve activity. It has been associated with rare intimal dissections of the renal artery and renal artery aneurysms that may require emergent nephrectomy.

141. A 45-year-old man with a T6 spinal cord injury managed with an indwelling urethral catheter is diagnosed with a 6 cm T2 high grade urothelial carcinoma with squamous differentiation. The tumor is located near the dome and random biopsies are negative. The metastatic evaluation is negative. The next step is:

A. partial cystectomy.
B. cisplatin-based neoadjuvant chemotherapy.
C. Adriamycin™ based neoadjuvant chemotherapy,
D. chemotherapy and XRT.
E. radical cystoprostatectomy
ANSWER=B

A recent secondary analysis of the SWOG neoadjuvant chemotherapy trial testing M-VAC followed by cystectomy vs. cystectomy alone for muscle invasive bladder cancer showed that the survival benefit to chemotherapy in patients with mixed histology including squamous or glandular differentiation was actually superior to that seen in patients with pure urothelial cancer. Partial cystectomy is not appropriate for large urothelial carcinomas regardless of their location. Radical cystoprostatectomy and ileal conduit will be appropriate after chemotherapy or if the patient cannot safely have chemotherapy due to comorbidities or other constraints such as poor renal function. Adriamycin-based chemotherapy is used for pure squamous cell carcinoma of other primary sites but has no role in urothelial carcinoma. Chemotherapy and XRT are not preferred in a patient that is otherwise a surgical candidate. If the patient had pure squamous cell carcinoma, immediate radical cystoprostatectomy would be appropriate.

142. A 47-year-old man has a dorsal penile nodule for three months. There is a painful hourglass deformity upon erection. The next step is:

A. anti-inflammatories.
B. vacuum erection device.
C. intra-lesional collagenase.
D. ESWL of penile plaque.
E. plaque incision and grafting.
ANSWER=A

This patient is currently in the active phase of Peyronie's disease. The vacuum erection device and the penile traction device have not been adequately studied as primary treatment therapies during the acute phase of this disorder and should not be recommended at this time. The role of ESWL to treat Peyronie's disease has been shown to decrease penile pain but does not significantly improve the penile curvature or resolve the hourglass deformity. Intralesional collagenase is recommended to be used in patients in the active phase and with patients with a minimum of 30-degree curvature. Collagenase has not, however, been tested in patients with an hourglass deformity. Incision and grafting or plication should only be performed in patients in the quiescent phase. The best option at this time is anti-inflammatories and observation.

143. A 38-year-old man develops a 5 mm ureteral stricture overlying the iliac vessels six months following ureteroscopy and stone basketing. The next step is:

A. retrograde balloon dilation.
B. percutaneous nephrostomy and antegrade balloon dilation.
C. ureteroscopic endoureterotomy.
D. ureteroureterostomy.
E. ureteral reimplantation with psoas hitch.
ANSWER=C

The best management for ureteral strictures less than 2 cm with no previous intervention is an endoscopic approach. Balloon dilation has been reported with some short-term success but long-term outcomes are unfavorable. Should balloon dilation fail, a much longer stricture may develop requiring more invasive intervention. Ureteroscopic ureterotomy, such as with laser incision, provides a more durable long-term outcome. Care must be taken to place the

endoureterotomy incision away from the iliac vessels medially (anteromedial incision). Cautery wire incision does not offer any advantage over ureteroscopic endoureterotomy, and ureteroureterostomy is reserved for recurrent ureteral strictures or strictures > 2 cm upon presentation.

144. One day following his first injection of his first cycle of intra-lesional collagenase (XiaflexM) for Peyronie's disease, a 54-year-old-man experiences penile pain, edema, and ecchymosis after sex. The next step is:
A. anti-inflammatory.
B. pressure dressing.
C. delay the second collagenase injection to greater than 72 hours.
D. cystoscopy.
E. penile exploration.
ANSWER=E
A known complication of intra-lesional collagenase is a penile fracture. Thus, patients are advised not to engage in sexual activity for two weeks after the injection in order to mitigate the risk of penile fracture. In this case, it is highly likely that he has experienced a penile fracture and he should be surgically explored. A cystoscopy would be warranted at the time of penile exploration to rule out a concurrent urethral injury. Delaying the second injection to > 72 hours, using anti-inflammatories or applying a pressure dressing, would be appropriate if the penile pain would have occurred following the injection only, but would not be the best option in treating a patient who developed symptoms during or following coitus.

145. An antibiotic is being studied to test its ability to prevent UTI. The binary outcome measurement is the development of a UTI. Analysis of this binary variable would not include:
A. t-tests.
B. chi-square.
C. Fisher's exact test.
D. logistic regression.
E. point-biserial correlation.
ANSWER=A
T-tests as well as analysis of variance, correlation coefficients, and linear multiple regression T" are used to compare results of a dependent variable that is measured as a continuous variable. These tests can compare groups that have means and standard deviations. When the dependent variable is measured as a binary variable, then statistics such as the frequency T* are able to be determined, but means and standard deviations or variance are not. In that case, the types of statistical procedures used are chi-square, Fisher's exact test, point-biserialcorrelation coefficients, and logistic regression.

146. A seven-year-old boy with two 5 mm renal pelvis stones undergoes ureteroscopy and basket extraction of one stone. During reinsertion of the ureteroscope, a small ureteral perforation is identified. The next step is:
A. remove ureteroscope and stop operation.
B. placement of a ureteral stent.
C. basket extraction of remaining stone and stent placement.
D. fragment stone into 1 mm fragments and stent placement.
E. stent and percutaneous nephrostomy tube placement.
ANSWER=B
Identification of a ureteral perforation is an indication for immediate discontinuation of the procedure and passage of a ureteral stent. Persistence of the operation may lead to further — shear force injury on the ureter or extravasation of irrigant or urine. If a ureteral stent is placed, percutaneous drainage is not necessary.

147. A 22-year-old woman with ESRD and spina bifida undergoes pre-op transplant evaluation. Renal bladder ultrasound reveals moderate bilateral hydroureteronephrosis associated with a full bladder. Videourodynamics reveals a total fill poorly-compliant bladder with detrusor pressures of 50 cm H2O at 100 ml, associated with bilateral grade 2 VUR, and end fill detrusor pressure of 85 cm H20 at 280 ml with overflow incontinence. She leaks urine several times a day despite CIC four times daily and obtains 250-300 ml/catheterization. The next step is:
A. proceed with kidney transplant, then re-evaluate bladder.
B. bladder augmentation after kidney transplant.
C. bladder augmentation prior to kidney transplant.
D. bilateral native nephrectomies and augment prior to kidney transplant.
E. recommend against kidney transplant.
ANSWER=C
The patient has poor bladder compliance with bilateral grade 2 VUR, elevated pressures of > 40 cm at 100 ml, and end fill detrusor pressure with overflow at system LPP of 85 cm at 280 ml. These urodynamic findings are highly suggestive of high detrusor pressures being related to her loss of renal function. She can undergo kidney transplant, however, to reduce risk of damage to the transplant, she would be best treated with pre-transplant bladder augmentation. This would lower her detrusor storage pressures and probably minimize or resolve her low grade VUR. It is noteworthy that this patient does not have oliguric renal failure. Poor detrusor compliance is frequently found on a urodynamic study in oliguric or anuric pre-transplant patient due to disuse detrusor atrophy. In the latter patients, the bladder will almost invariably develop normal compliance post-transplant and no preoperative intervention is required. If there is concern that the bladder is really noncompliant in a patient with oliguric renal failure, individuals may be started on CIC with increasing volumes of fluid placed in the bladder over a series of weeks and the urodynamic study repeated. This patient does not have any of the criteria necessary to consider pre-transplant nephrectomy. Indications for pre-transplant nephrectomy are: renal lithiasis, renal mass, chronic pyelonephritis, uncontrollable hypertension, and excessive proteinuria. Occasionally in a patient with autosomal dominant polycystic kidney disease, a nephrectomy may be performed due to inadequate space for a renal transplant.

148. A healthy 55-year-old woman with rheumatic heart disease and a systolic murmur is about to undergo urodynamic testing. Urinalysis is negative. Appropriate antimicrobial prophylaxis includes:
A. no antimicrobials.
B. amoxicillin.
C. fluoroquinolone.
D. trimethoprim-sulfamethoxazole.
E. gentamicin.
ANSWER=A
The American Heart Association does not recommend the administration of prophylactic antibiotics to prevent bacterial endocarditis associated with urodynamic testing or other genitourinary procedures presuming a negative urinalysis and sterile technique. Infectious endocarditis is more likely to result from random bacteremias associated with daily activities than from those caused by genitourinary procedures. Prophylaxis may prevent only a very small number of cases of infectious endocarditis, if any, in individuals undergoing genitourinary procedures. Overall, the risk of antimicrobial-associated adverse events exceeds the benefit from prophylactic antimicrobial therapy solely to prevent infectious endocarditis in patients undergoing genitourinary procedures.

149. A 67-year-old man with a history of radical prostatectomy, cardiovascular disease, osteoporosis, and diabetes is planning to initiate testosterone therapy. Prior to initiating testosterone therapy, he should be counseled about an increased risk of:
A. myocardial infarction and stroke.

B. prostate cancer recurrence.
C. insulin resistance.
D. anemia.
E. osteoporosis progression.
ANSWER=A
Recently, the FDA has issued a warning and label change with testosterone products for the potential increased risk of cardiovascular disease in men taking testosterone. Patients should be counseled on this potential cardiovascular risk prior to starting therapy. Testosterone therapy has been shown to improve insulin resistance and osteoporosis. Patients on testosterone therapy can develop erythrocytosis, not anemia. There is no data to support that testosterone causes prostate cancer or increases incidence of recurrence.

150. The use of fluorescence ("bluelight") cystoscopy has been shown to:
A. decrease utilization of intravesical therapies.
B. decrease progression rates.
C. decrease cystectomy rates.
D. increase detection of CIS.
E. increase tumor detection after BCG.
ANSWER=D
Hexaminolevulinate hydrochloride was approved in the U.S. by the FDA in 2010 as an optical imaging agent indicated for use in the cystoscopic detection of non-muscle invasive bladder cancers. It is used with a cystoscopic photodynamic detection system to perform so-called fluorescent, or “blue light” cystoscopy to aide in the detection of bladder tumors. According to the pivotal phase III North American multicenter trial, fluorescence cystoscopy improved the detection of both CIS and of papillary tumors as compared to conventional white light cystoscopy. As of yet, these pivotal trials have not demonstrated a reduction in progression rates, cystectomy rates, or use of intravesical therapies. Of note, it is contraindicated in patients who have received BCG within 90 days of treatment and, therefore, is not commonly utilized at this time for the tumor detection post-BCG.

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aua 2017

1. Oliguria associated with acute tubular necrosis is characterized by which urinary findings:

A. ↑ sodium, ↓ urea, ↓ osmolality.
B. ↓ sodium, ↓ urea, ↓ osmolality.
C. ↓sodium, ↑ urea, ↓ osmolality,
D. ↑ sodium, ↑ urea, ↑osmolality.
E. ↓ sodium, ↓ urea, ↑ osmolality.
ANSWER=A

Most major causes of acute renal failure can be differentiated by urinalysis and urinary chemistries. With tubular cell injury, the kidney is no longer able to reabsorb filtered salt and water (under normal conditions, approximately 99% of filtered NaCI and water are reabsorbed and 50-80% of all filtered urea is excreted). In acute tubular necrosis, renal tubular function is injured resulting in loss of filtered water which causes a decrease in urinary osmolality. In addition, failure to resorb filtered sodium and failure to excrete urea (other functions of the renal tubular cell) will result in an increased urinary sodium and decreased urinary urea.

2. The most important factor responsible for the frequent recurrence of UTIs in an otherwise healthy, young woman is:

A. adhesive fimbriae of uropathogens.
B. specific receptors on urothelial cells.
C. presence of pathogenic coliforms in stool.
D. feminine hygiene practices.
E. method of contraception.
ANSWER=B

Properties of uropathogens, sexual activity, feminine hygiene practices, and the use of an IUD and/or spermicide may increase the frequency of UTIs in predisposed women; however, they are not the most important etiologic factors. Many women who have uropathogenic bacteria present in their bowel, use various contraceptive and hygiene methods, and are sexually active without developing infections. E. coli must colonize the peri-urethral area before an uncomplicated infection can occur. Coliform organisms are recovered only rarely from the region of the vaginal vestibule, and external urethra in otherwise healthy women who do not have recurrent UTIs. It is postulated by most researchers that host factors, rather than specific pathogenicity of the micro-organisms, are the prime determinants of colonization. E. coli tend to adhere more to vaginal and buccal epithelial cells obtained from women with recurrent infection than to controls. This explains why certain women are prone to frequent recurrent infections. It would also explain why women with asymptomatic bacteruria are more prone to recurrent infection with marriage and pregnancy, and would account for UTIs associated with intercourse, various contraceptive methods, etc., in highly susceptible women.

3. The antimicrobial agent that can be used at the usual dosage in an azotemic patient is:

A. nitrofurantoin.
B. sulfamethoxazole.
C. doxycycline.
D. trimethoprim.
E. fluconazole.
ANSWER=C

All the antibiotics listed including most tetracyclines, except doxycycline, are excreted primarily in the urine and their blood levels increase in the presence of renal insufficiency. Doxycycline is excreted mainly in the feces and does not require consideration for a dosage reduction in an azotemic patient.

4. A 23-year-old woman suffers a complex pelvic fracture in an MVC. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted, and she is hemodynamically stable. Treatment should be:

A. urethral catheter drainage.
B. suprapubic cystostomy.
C. urethral catheter placement and repair of vaginal lacerations.
D. bladder repair and vaginal packing.
E. repair of vaginal and bladder lacerations.
ANSWER=E

Urethral and bladder neck injuries in women are rare but potentially devastating in their effects on long-term continence and bladder function. The urethra is short, mobile, and protected by the pubis in women. Female urethral and bladder neck injuries occur in 4.6% to 6% of women suffering pelvic fractures. The typical presentation includes gross hematuria or blood at the introitus. Despite blood in the vaginal vault, over 40% of female bladder neck and urethral injuries are missed in the emergency department and only half will be detected on CT cystogram. As a result, one must have a high index of suspicion and low threshold for performing a vaginal examination in females with pelvic fractures. Female bladder neck injuries should undergo immediate repair with primary closure of any vaginal lacerations to prevent fistula formation. Longitudinal tears of the female bladder neck have been associated with higher rates of incontinence. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. In one recent series, despite operative repair, 16% of women developed vesicovaginal fistulas, 43% had moderate or severe lower urinary tract systems, and 38% had sexual dysfunction.

5. A two-year-old boy with normal penile development is explored for non-palpable testes through bilateral groin incisions. On each side, the vas deferens and spermatic vessels end blindly at the internal ring. The next step is:

A. observation.
B. CT scan of abdomen.
C. serum inhibin B and abdominal ultrasound.
D. FSH, LH, testosterone level, and stimulate with hCG.
E. diagnostic laparoscopy.
ANSWER=A

In a young patient with absent testes and normal penile development, testosterone stimulation was present at 16 weeks gestation. Loss of testicular function before this time leads to inadequate virilization. The finding of a blind-ending vas deferens and vessels is adequate to define the pathology and further exploration in this case is unnecessary. Chromosomal study of such cases is usually unnecessary as they carry none of the stigmata of intersexuality and will have a normal (46 XY) karyotype. At age of puberty, such anorchid patients will have elevated gonadotropin and require testosterone therapy.

6. A 55-year-old woman, who had a sacral neuromodulation implant placed four years ago, has declining efficacy despite several reprogramming sessions. A plain film X-ray is shown. The next step is:

A. revise lead, place electrodes deeper.
B. revise lead, place lead more laterally in S3.
C. revise lead, place lead in S4.
D. revise lead, place lead with curved stylet.
E. remove IPG and lead, initiate 200 units onabotulinumtoxinA injections.

ANSWER=D

This plain film AP view shows the lead lateral in the S3 foramen. The lateral view shows it too deeply placed, and this puts her at risk for deep stimulation of S2 roots causing leg and other lower extremity untoward stimulation. The use of the curved stylet would allow placement of the lead into S3 in a more medial to lateral configuration, thereby, allowing maximal contact of electrodes to the nerve. This is due to the nerve following a medial to lateral course. Revising leads to place deeper may create stimulation of leg and other untoward effects as mentioned above. S4 stimulation has not been shown to create better efficacy than S3. Lateral lead placement would not allow best contact with the nerve. It would be premature to remove the system and start onabotulinumtoxinA injections. If ultimately utilized, the dose onabotulinumtoxinA used for OAB is 100 units.

7.A five-day-old boy has vomiting and dehydration. His serum C02 is 12mEq/L, K+ 5.5mEq/L, and creatinine 2.2 mg/dL. A VCUG demonstrates PUV and bilateral grade 4 VUR. The next step is:

A. percutaneous cystostomy.
B. percutaneous nephrostomies,
C. valve ablation,
D. urethral catheter drainage,
E. cutaneous vesicostomy.

ANSWER=D

The management of the infant with a PUV depends on the severity of the obstruction and the degree of any renal dysplasia present. The main problems arise in management of the infant with severe obstruction and compromised renal function with dehydration, acidosis, and sepsis. Initially, a small infant feeding tube, placed transurethrally, can provide bladder drainage. Once stabilized, valve ablation can be undertaken. Vesicostomy is reserved for infants who cannot undergo primary valve ablation because of the inadequate size of their urethra or for very small, unstable infants. If initial bladder level drainage does not result in satisfactory clinical improvement, temporary supravesical diversion may be considered; however, the vast majority of these patients will be found to have renal dysplasia, not ureterovesical obstruction, as the etiology of the persistently elevated creatinine.

8. A 40-year-old man suffers a gunshot to the abdomen with left ureteral transection at the L3 vertebral level, and a ureteroureterostomy is performed. Post-operatively, he is not able to flex his thigh. These deficits are due to injury to the:

A. femoral nerve.
B. ilioinguinal nerve.
C. genitofemoral nerve.
D. lateral femoral cutaneous nerve.
E. obturator nerve.

ANSWER=A

The femoral nerve arises from the second, third, and fourth lumbar spinal segments. It appears at the lateral edge of the psoas muscle and descends into the thigh. It supplies a number of muscles including the quadriceps femoris complex, articularis genu, sartorius, pectineus, andiliopsoas. Ilioinguinal, genitofemoral, and lateral femoral cutaneous nerves are sensory nerves. The obturator nerve would be responsible for adduction of his leg.

9. A two-month-old, uncircumcised boy with a sacral dimple undergoes evaluation of a febrile UTI. Ultrasound shows bilateral hydroureteronephrosis and a conus medullaris at the mid-aspect of L4. VCUG shows bilateral grade 4 reflux and a normal urethra. The next step is:

A. CMG.
B. cystoscopy.
C. MAG-3 renal scan.
D. circumcision.
E. vesicostomy.

ANSWER=A

This infant has a compromised urinary tract and a neurogenic cause must be considered. The conus normally ends above L3 and spinal ultrasound is a convenient and accurate method of screening in the neonatal period. Given his low conus, a CMG would be important to see if filling curve and storage pressure are abnormal with abnormal urodynamic findings substantiating the presence of a clinically significant tethered cord. Circumcision is not mandatory. Vesicostomy at this point is premature and cystoscopy is not necessary. The hydronephrosis, in this case, is related to the bladder dysfunction and a MAG-3 scan is unnecessary.

10. A 42-year-old man with azoospermia and primary infertility has a FSH of 15 mlU/L, small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have a biologic child is:

A. vasography.
B. serum FSH.
C. wife's fertility.
D. testicular volume.
E. testicular biopsy.

ANSWER=C

The presence of small volume testes with an elevated FSH suggests the presence of nonobstructive azoospermia. Most men with non-obstructive azoospermia will have sperm retrievable from the testes that can be used in conjunction with in vitro fertilization for the wife. The most important characteristic to determine eligibility for treatment will be the wife's age and fertility. Screening for obstruction with vasography is not of value. Testicular biopsy may be useful as an indicator for success with intracytoplasmic sperm injection (ICSI) and sperm harvest. With an elevated FSH, diagnostic biopsy is not indicated.

11. A 34-year-old woman is hypertensive. Laboratory studies reveal a serum sodium of 149mEq/L, potassium 2.9mEq/L, and C02 28mEq/L. Plasma renin activity is suppressed. A CT scan reveals an enlarged left adrenal gland but no distinct mass. The next step is:

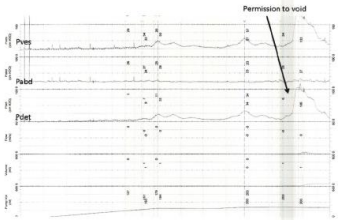
A. spironolactone.
B. nifedipine.
C. MRI scan of adrenal.
D. serum aldosterone:renin ratio.
E. adrenal vein aldosterone sampling.

ANSWER=E

This woman has hypertension due to primary hyperaldosteronism. The CT scan suggests hyperplasia of the left adrenal gland. In order to differentiate hyperplasia from an adenoma, adrenal vein sampling for aldosterone will show elevated levels on the left and suppressed levels on the right if an adenoma is present. MRI scan will not differentiate between an adenoma and hyperplasia. A serum aldosterone:renin ratio will not lateralize the lesion. If adrenal vein sampling does not lateralize, then medical therapy with spironolactone is indicated, rather than nifedipine, which is not

potassium sparing. If an adenoma is present, surgical removal is the best treatment.

12. A 67-year-old man has bothersome LUTS six months after hip surgery despite tamsulosin treatment. His urinalysis shows 0-2 RBC/hpf, and his PVR is 90mL. DRE demonstrates 35 gm prostate. He undergoes urodynamics as shown. The next step is:
A. creatinine.
B. antimuscarinics.
C. cystoscopy.
D. prostatic onabotulinumtoxinA.
E. TURP.



ANSWER=E
This patient has urodynamically demonstrable bladder outlet obstruction. While antimuscarinics may help his irritative symptoms (e.g., frequency, urgency, urge incontinence), it will not address his primary obstructive problem, and indeed, may worsen his symptoms. Obtaining a serum creatinine is not useful or recommended in the BPH guidelines for work-up of LUTS. Cystoscopy may help assess prostatic size, but would be unlikely to change management as his DRE shows a 35-gm prostate on exam. OnabotulinumtoxinA injections are not approved for, nor do they have documented efficacy for the treatment of LUTS related to bladder outlet obstruction. In this patient, TURP is the next step for the treatment of bladder outlet obstruction.

13. A 49-year-old man had a lesion of the glans penis and undergoes excisional biopsy. Pathology reveals squamous cell CIS with a positive margin. Physical examination reveals a well-healed scar and no inguinal adenopathy. The next step is:
A. podophyllin.
B. brachytherapy.
C. excision of previous scar.
D. partial penectomy.
E. total penectomy.
ANSWER=C
Given the positive margin, this patient requires further therapy around the scar. This can include the excision of the scar, laser therapy, or topical therapy with either 5-FU or imiquimod. Podophyllin is used to treat genital warts and has no role in the treatment of carcinoma. Partial or complete penile amputation and radiation therapy are too aggressive for this patient with CIS.

14. A ten-day-old infant boy is hospitalized for failure to thrive. After his umbilical stump fell off, fluid has intermittently drained from the umbilicus. The umbilical fluid has a creatinine of 10 mg/dL and grows > 10s CFU/mL of E. coli. The next step should be antibiotics and:
A. observation.
B. urethral catheter drainage.
C. VCUG.
D. cauterization of tract.
E. closure of fistula.
ANSWER=C
The differential diagnosis of a wet umbilicus in the infant, includes patent urachus, omphalitis, simple granulation of the healing stump, patent vitelline or omphalomesenteric duct, infected umbilical vessel, and external urachal sinus. The finding of a urinary creatinine level in the fluid draining from the umbilical stump suggests a patent urachus. While probing the urachal tract may aid in diagnosis, a VCUG should confirm the diagnosis and fully evaluate the lesion and any associated bladder outlet obstruction. Cauterization of the tract and closure of the fistula are not indicated until VCUG is performed to rule-out bladder outlet obstruction. Urethral catheter drainage will not definitively treat the patent urachus if obstruction is present.

15. A 76-year-old man with diabetes has hematuria. CT urogram shows a 5 mm filling defect in the distal right ureter. Ureteroscopic biopsy reveals a low grade urothelial carcinoma. The next step is:
A. nephroureterectomy.
B. ureteral stent and intravesical BCG.
C. segmental resection and ureteroureterostomy.
D. ureteroscopic tumor ablation.
E. distal ureterectomy and reimplantation.
Answer= D.
In an older patient with medical problems, ureteroscopic biopsy, electro-resection and laser destruction has been utilized to successfully manage small, low grade, non-invasive ureteral tumors. This approach may avoid nephroureterectomy or partial resection. Although, historically, distal ureterectomy and reimplantation has been considered, endoscopic management of solitary low-grade tumors have become the preferred treatment. Upper tract BCG may be effective for high grade disease, but delivery of the agent is least consistent when relying on reflux around a ureteral stent.

16. A 72-year-old woman undergoes an abdominal hysterectomy. In the recovery room, she is anuric for four hours despite several boluses of I.V. fluids. Her indwelling catheter is patent, BP is 100/50 mmHg, and pulse is 100 BPM. Her estimated blood loss during the procedure was 1000 mL. The best explanation for her condition is:
A. acute tubular necrosis.
B. bilateral ureteral obstruction.
C. prerenal azotemia.
D. hypovolemic shock.
E. bladder perforation.
ANSWER=B
Anuria always implies complete ureteral obstruction until proven otherwise. The two most likely areas where the ureter can be occluded during hysterectomy are at the level of the broad ligaments and at the vaginal cuff and bladder trigone. Consequently, the most likely finding in this patient would be a ureteral obstruction at the level of the vaginal cuff. While hypovolemic shock and low urine outputs are commonly seen after all types of abdominal operations, the anuria in this case suggests an obstructive etiology. Acute tubular necrosis does not normally occur in a precipitous fashion as in this case. A vesicovaginal fistula should be obvious clinically.

17. The boundaries of a standard inguinal lymph node dissection for the treatment of penile cancer should include:
A. inguinal ligament, sartorius, adductor longus.
B. inguinal ligament, sartorius, fascia lata.
C. inguinal ligament, gracilis, adductor longus.
D. Cooper's ligament, sartorius, adductor longus.
E. Cooper's ligament, gracilis, adductor brevis.

18. A 17-year-old boy with spina bifida has a two-week history of fever and vague abdominal pain. He has a prior bladder augmentation, appendicovesicostomy, bladder neck sling, and bilateral cross-trigonal ureteral reimplantation. Renal ultrasound is shown. The next step is antibiotics and:
A. observation.
B. tamsulosin.
C. cystoscopy and ureteral stent.
D. percutaneous nephrostomy tube.

E. CT cystogram.

19. 5-alpha-reductase deficiency is associated with:
A. poorly differentiated Wolffian structures.
B. presence of developed Mullerian structures.
C. gynecomastia.
D. elevated concentration of testosterone at puberty.
E. elevated dihydrotestosterone:testosterone ratio.
ANSWER=D
The defective conversion of testosterone to dihydrotestosterone produces a unique form of male pseudohermaphroditism. At birth, the Mullerian structures are absent and testosterone dependent Wolffian structures are well differentiated. The 5-alpha-reductase enzyme defect is generally incomplete, and at puberty the plasma concentration of dihydrotestosterone, while low, is detectable. Plasma testosterone and LH are elevated while the dihydrotestosterone/testosterone ratio is abnormally low. 5-alpha-reductase deficiency is inherited as an autosomal recessive trait, and the enzymatic defect exhibits genetic heterogeneity.

20. A 32-year-old woman with a solitary kidney underwent urinary diversion with an ileal conduit as a child. She has stable, moderate hydronephrosis, but her serum creatinine has risen to 2.8 mg/dL. A loopogram shows no reflux and no residual urine. A diuretic renogram reveals delay in uptake of the radiopharmaceutical and poor response to diuretic with a T1/2 of 22 minutes. The next step is:
A. hydrate and repeat the renogram.
B. contrast CT scan.
C. percutaneous nephrostomy tube.
D. renal biopsy.
E. revision of the ileal conduit.
ANSWER=C?
This woman most likely has chronic renal insufficiency and the renogram reflects this condition. Diseased kidneys may respond poorly to diuretic in the absence of obstruction. The only way to establish conclusively if obstruction exists would be to place a nephrostomy tube. A pressure-flow study can then be performed and the serum creatinine observed. A renal biopsy, if performed, is likely to show focal segmental sclerosis and/or chronic pyelonephritis but this is not helpful in management.

21. A 60-year-old man has a high grade, T1 urothelial carcinoma of the bladder. He receives the fifth of six weekly instillations of intravesical BCG. Twelve hours later, he has a temperature of 39.5° C, difficulty breathing, and hypotension. The most likely cause of this complication is:
A. reflux of BCG into the upper tracts.
B. acute UTI.
C. traumatic catheterization.
D. more virulent strain of BCG.
E. impaired immunological state.
ANSWER=C
The majority of patients tolerate BCG instillation well. In 2,602 patients treated with different strains of BCG, high fever (> 39 degrees C) was noted in 2.9% of patients. Life-threatening BCG sepsis was noted in 0.4%. Fever > 39.5 degrees C that does not resolve within 12 hours despite antipyretic therapy is potentially dangerous. Since most cases of BCG sepsis are associated with I.V. absorption of BCG, it is recommended that BCG not be given until at least one week after tumor resection. In the patients who died from BCG sepsis, almost all cases had traumatic catheterization before instillation therapy, or they were treated too early after TURBT or biopsy. Treatment should include isoniazid 300 mg, rifampin 600 mg, and ethambutol 1200 mg daily. After antituberculosis drugs are started, corticosteroids may be given if the patient is toxic. Given the timing of the signs and symptoms in relation to the BCG instillation, acute UTI is much less likely to be a cause of this patient's symptoms.

22. A 45-year-old man with a history of hypertension and significant tobacco use has erectile dysfunction one year following a crush injury to the pelvis. An arteriogram at the time of his injury revealed unilateral focal occlusion of the internal pudendal artery. Treatment should be:
A. intracavernous vasoactive injections.
B. dorsal venous ligation.
C. percutaneous angioplasty.
D. arterial revascularization.
E. penile prosthesis.
ANSWER=A
Percutaneous or surgical revascularization of the internal pudendal arteries is not indicated owing to the patient's age and associated risk factors for atherosclerotic vascular disease, (e.g., hypertension and smoking). There is no indication for venous ligation. Owing to the vascular disease, penile injections may not be successful, but should be implemented prior to insertion of a penile prosthesis.

23. A 39-year-old man with a large, left varicocele requests vasectomy reversal fouryears after vasectomy. At scrotal exploration, he has rare non-motile sperm in the right vas deferens and an absence of sperm in clear fluid from the left vas deferens. The next step is:
A. bilateral vasovasostomy.
B. left varicocelectomy and bilateral vasovasostomy.
C. right vasovasostomy and left vasoepididymostomy.
D. left testis biopsy and intra-operative wet prep evaluation.
E. testicular sperm extraction.
ANSWER=A
With sperm in the vas and a patent abdominal vas deferens, right vasovasostomy is indicated. For men with clear fluid in the vas deferens, the prognosis for return of sperm to the ejaculate is excellent after vasovasostomy alone; therefore, left vasovasostomy is also indicated. Epididymal exploration and intra-operative testis biopsy will not provide material information to affect treatment decisions. Varicocelectomy and vasovasostomy should not be performed simultaneously as venous outflow from the testis after varicocele repair is dependent primarily on the vasal vessels that are divided during vasectomy or vasovasostomy, and testicular atrophy may result.

24. A 21-year-old man develops a large dorsal hematoma after a seemingly superficial stiletto knife wound to his penis at the dorsal penoscrotal junction. He is able to void normally after the injury and has no urethral bleeding or gross hematuria. The next step is:
A. pelvic MRI scan.
B. retrograde urethrography.
C. urethroscopy.
D. antibiotics and wound closure.
E. exploration.
ANSWER=E
Patients with tangential or superficial wounds clearly away from the urethra and that can void without urethral bleeding or hematuria, do not require a retrograde urethrogram. However, these patients

should be explored except those with clearly superficial injuries. Patients with stab wounds usually can be expected to have preservation of potency. While most surgeons recommend retrograde urethrography in all patients with penetrating penile trauma, experience in the literature suggests that few truly occult urethral injuries occur in these patients. In patients with low velocity injuries, only those with blood at the meatus, hematuria, difficulty voiding, or injury near the urethra may require retrograde urethrography. Most patients will require retrograde urethrography to rule-out urethral injury and many will need surgicalexploration to rule-out and repair any corporal injury or other cause of bleeding. However, select patients, such as the one in this patient scenario, do not require retrograde urethrography. Some patients with minimal wounds can be treated non-operatively. Pelvic MRI scan is not indicated for penetrating genital injuries but may be helpful in blunt genital trauma.

25. The initial response of the renal vasculature to complete ureteral obstruction is:

A. preglomerular vasodilatation,
B. postglomerular vasodilatation,
C. afferent arteriolar constriction,
D. efferent arteriolar constriction,
E. renal artery vasoconstriction.

ANSWER=A

The initial renal response to complete ureteral obstruction is to increase glomerular perfusion pressure. Postglomerular vasodilation without any change in the preglomerular vessels would result in lower glomerular perfusion pressures, not higher. Likewise, afferent arteriolar constriction and renal artery vasoconstriction would result in decreased glomerular perfusion pressure. Of the choices listed, only preglomerular vasodilation and efferent arteriolar constriction lead to increased glomerular perfusion pressures. Preglomerular vasodilation is the first response in both unilateral and bilateral ureteral obstruction. Efferent arteriolar constriction does occur as a second phase in bilateral ureteral obstruction but does not occur in unilateral obstruction.

26. A 54-year-old woman undergoes a continent cutaneous urinary diversion two years after pelvic radiation for cervical cancer. Four months later, she has right lower quadrant pain and fecaluria. A pouchogram reveals contrast extending into the colon adjacent to the pouch. The next step is:

A. hyperalimentation.
B. bilateral nephrostomy drainage.
C. pouch endoscopy and fulguration of fistula.
D. catheter drainage and low residue diet.
E. colonoscopy.

ANSWER=D

Entero-pouch fistulas have been reported after ileal and right colon urinary diversion. The diagnosis should be suspected in patients who present with gastrointestinal symptoms and metabolic acidosis. These fistulas are most common after pelvic irradiation. Conservative therapy can be effective with low residue diet and continuous pouch drainage. Further diagnostic evaluation with colonoscopy or pouch endoscopy is of little value, and biopsy or fulguration may enlarge the fistula. Bilateral nephrostomy drainage alone will not achieve maximal drainage of the pouch. Open surgical exploration may be required if this regimen fails. Hyperalimentation alone, without catheter drainage, is insufficient to resolve the fistula.

27. A 55-year-old man with bladder cancer undergoes a radical cystectomy. He is averse to an incontinent diversion. Intra-operative frozen-section reveals negative lymph nodes but invasive urothelial carcinoma at the prostatic apical margin. The next step is:

A. ileal neobladder.
B. ileal neobladder and adjuvant pelvic radiotherapy,
C. ileal neobladder and adjuvant chemotherapy,
D. ileal conduit.
E. continent cutaneous urinary diversion.

ANSWER=E

The presence of invasive urothelial carcinoma of the prostate carries a high risk of urethral recurrence and is a contraindication to orthotopic bladder replacement. All patients undergoing cystectomy should be counseled about the possibility that intra-operative findings might change the planned form of urinary diversion, and all of the alternatives should be discussed prior to surgery. Of the choices listed, the continent cutaneous urinary diversion is the best option for a patient who is strongly averse to an external appliance and has agreed to the concept of CIC.

28. The vertebral level at which the conus medullaris in the neonate terminates is:

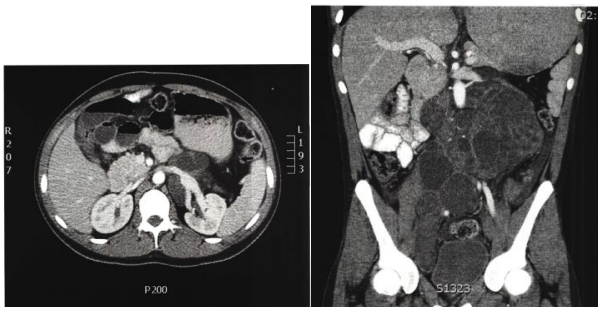
A. L1
B. L3
C. L5
D. S1
E. S3

ANSWER=B

The conus medullaris of the spinal cord terminates between the second and third lumbar vertebra in the newborn. In the adult, the spinal cord usually terminates between the first and second lumbar vertebra. Understanding this relationship is critical to be able to diagnose a tethered cord. Cord tethering is often assumed to be present when the conus is below the L2 interspace, with termination below L3 resulting in an absolute diagnosis. It is important to note that imaging features support, rather than make, the diagnosis. The clinical diagnosis of a tethered cord is based on the radiologic findings of tethering along with the clinical findings of "neurological and musculoskeletal signs and symptoms." Clinical findings that help support the diagnosis of a tethered cord are foot deformities, leg weakness or pain, gait abnormalities, lower back pain, scoliosis, and fecal or urinary incontinence. From a urologic standpoint, urinary incontinence or symptomatic voiding difficulties will be present in up to 50% of patients with a tethered cord, and urodynamic abnormalities will be found in approximately 70% of patients.

29. A 25-year-old man with negative tumor markers underwent a left radical orchiectomy with pathology showing mature and immature teratoma. Chest CT scan is negative. CT scan images of the abdomen and pelvis are shown. The next step is:

A. PET CT scan.
B. percutaneous biopsy of the retroperitoneal mass.
C. three cycles of EP.
D. three cycles of BEP.
E. RPLND.



ANSWER=D

The patient has bulky retroperitoneal masses from NSGCT. Although the primary tumor was teratoma, there was a component of immature teratoma which would classify the patient as a NSGCT. Despite teratoma only, this patient should be treated like metastatic NSGCT, and the correct treatment is three cycles of BEP. The patient has "good risk" NSGCT, defined as primary testicular or

retroperitoneal disease, no pulmonary metastases, and negative or low tumor markers. For "good risk" patients, three cycles of BEP are equivalent to four cycles of EP. If the masses remain after chemotherapy, which is likely in patients with teratoma, he will require an extensive post-chemotherapy RPLND. A PET CT is not necessary as the patient needs chemotherapy regardless of the result. A biopsy is not necessary for the same reason.

30. A 25-year-old man sustains perineal trauma and a pelvic fracture. A retrograde urethrogram shows contrast in the upper thigh. The initial tissue plane the contrast passed through to reach the thigh is:
A. Buck's fascia.
B. Colles' fascia.
C. fascia lata.
D. external spermatic fascia.
E. dartos fascia.
ANSWER=A
It is unusual for extravasation of urine to reach the thigh. This suggests that the normal layers that more commonly contain urinary extravasation have been disrupted. The first layer that has to be disrupted for urine to reach the thigh must be Buck's fascia. The dartos fascia, Colles'fascia, and insertion of the fascia lata represent a continuation of the same fascial layer.

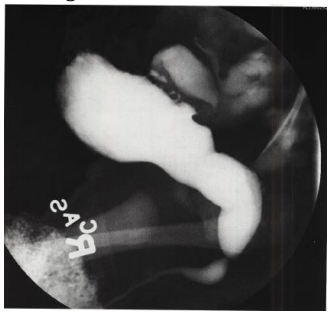
31. The prevalence of catheter-associated UTIs can be reduced by:
A. prophylactic oral antibiotics.
B. routine meatal cleansing.
C. antibiotic irrigation of the bladder.
D. maintenance of a closed drainage system.
E. hydrogen peroxide instillation into the drainage bag.
ANSWER=D
The daily risk of acquisition of bacteriuria when an indwelling catheter in-situ is three to seven percent. The rate of bacterial acquisition is higher for women and older persons. Heath care surveys in the USA report that UTIs are the fourth most common infection, accounting for 13% of health care infections; two-thirds of UTIs are directly related to the presence of an indwelling urinary catheter. Catheter-associated UTIs result in increased morbidity and mortality among hospitalized patients. Factors proven to reduce catheter-associated UTIs include: a closed drainage system, early catheter removal, and an aseptic insertion technique. Prophylactic antibiotics (systemic or topical) have not been shown to reduce the risk of CAUTI, and indeed some studies have revealed their use increased the presence bacterial resistance and candiduria. Routine meatal cleansing, intravesical antibiotic irrigation, or hydrogen peroxide instillations into the drainage bag have not been demonstrated to reduce the frequency of catheter associated infections.

32. Transection of the dorsal nerve roots at S2-S4 results in:
A. urinary incontinence.
B. detrusor sphincter dyssynergia.
C. loss of psychogenic erections.
D. anejaculation.
E. decreased penile sensation.
ANSWER=E
The pudendal nerve arises from the dorsal nerve roots at S2, S3 and S4. The pudendal nerve provides innervation of the striated external sphincter; transection would cause sphincter weakness. It also gives arise to the dorsal penile nerve which provides somatic sensation to the penis. Interruption of the pudendal nerve will cause decreased penile sensation, but not affect psychogenic erections. This may be clinically applicable to those patients who undergo dorsal rhizotomy. The sympathetic chain arising from T10 to L2 is responsible for ejaculation, and will not be impacted by transection of the sacral dorsal nerve roots.

33. A 24-year-old man has recurrent cystine nephrolithiasis. Urine volume is more than 3.0 L/day. He is taking alpha-mercaptoproprionylglycine (Thiola®) and potassium citrate tablets three times per day with no side effects. He notes that his stools are filled with tablet-like material. The best recommendation is:
A. reassurance.
B. take the tablets before meals.
C. evaluate for malabsorption.
D. change Thiola® to D-penicillamine.
E. change potassium citrate formulation.
ANSWER=A
Potassium citrate comes in a variety of formulations. Potassium citrate tablets are produced with a wax matrix to optimize their sustained release. It is not infrequent for these wax matrix tablet casts to be visualized in stools. This is most frequently seen in individuals with ileostomies. Patients should be reassured that the medicine is being delivered. To ensure that the citrate is being absorbed, it would be appropriate to check the urine pH. If the urine is acidic, it may be necessary to increase the potassium citrate dose.

34. A 35-year-old man with Hodgkin's disease has not voided for 18 hours. He is being treated with abdominal XRT and chemotherapy. The most likely cause of anuria is:
A. bilateral ureteral obstruction from retroperitoneal lymphoma.
B. radiation enteritis with dehydration.
C. acute tubular necrosis.
D. renal tubular obstruction with uric acid crystals.
E. acute radiation nephritis.
ANSWER=D
Hyperuricemia can be seen during the initial treatment of acute leukemias and lymphomas, in response to either chemotherapy or radiotherapy. The rapid destruction and cellular lysis of neoplastic cells results in a rapid rise in uric acid levels. Elevated urinary uric acid crystals will, in the presence of acid urine, precipitate within the distal convoluted tubules, leading to intrarenal obstruction and renal failure. Prophylaxis (and treatment) is accomplished by a combination of alkalinization, allopurinol, and hydration.

35. A one-day-old boy has a history of severe prenatal bilateral hydroureteronephrosis and oligohydramnios diagnosed at 19 weeks of gestation. Postnatal ultrasound confirms bilateral hydroureteronephrosis and his VCUG is shown. The most common cause of neonatal mortality is:
A. urosepsis.
B. acute renal failure.
C. pulmonary hypoplasia.
D. urinary ascites.
E. congenital cardiac disease.



ANSWER=C
The VCUG demonstrates the presence of posterior urethral valves and vesicoureteral reflux. The majority of neonates with the coexisting findings of posterior urethral valves and oligohydramnios prior to 20 weeks gestation will be found to have pulmonary hypoplasia and neonatal respiratory distress. The presence of

pulmonary hypoplasia in these infants still accounts for the majority of neonatal deaths in boys with posterior urethral valves. Urosepsis can occur, but usually not in the neonatal period with early diagnosis and initiation of appropriate prophylactic antibiotics. Acute renal failure can present in the first week of life but can be managed with neonatal peritoneal dialysis to avoid immediate renal induced mortality. Urinary ascites is common with high-grade urethral obstruction, but is usually protective for the kidneys, and is almost always successfully managed with bladder drainage and broad-spectrum antibiotics. Posterior urethral valves are not associated with lethal congenital cardiac disease.

36. The VHL tumor suppressor gene regulates the expression of:
A. basic fibroblastic growth factor.
B. epidermal growth factor receptor.
C. c-Met proto-oncogene.
D. VEGF.
E. transforming growth factor beta.
ANSWER=D
The wild type VHL tumor suppressor gene product suppresses the expression of VEGF, a potent stimulator of angiogenesis, through down-regulation of hypoxia-inducible factor 1 (HIF1). Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF, which contributes to the neovascularity associated with RCC. This pathway is of critical importance to practicing urologists as most recently developed tyrosine kinase inhibitors target the pathway directly or indirectly. All of the other listed genes are not directly regulated by HIF1, and, therefore, are not directly affected by VHL loss.

37. A 65-year-old man with rectal carcinoma treated by abdominal perineal resection develops urinary incontinence two years later. His urinalysis is normal and PVR is 300 mL. Renal ultrasound demonstrates moderate bilateral hydronephrosis. The most likely urodynamic findings are:
A. detrusor overactivity with bladder outlet obstruction.
B. detrusor overactivity with detrusor external sphincter dyssynergia.
C. detrusor areflexia with normal compliance.
D. detrusor areflexia with reduced compliance.
E. impaired bladder contractility with intrinsic sphincter deficiency.
ANSWER=D
Permanent lower urinary tract dysfunction occurs in 15-20% of patients following radical pelvic surgery. The typical pattern is one of detrusor areflexia or hypocontractility in the presence of fixed residual striated sphincter tone. This fixed tone represents a functional obstruction that frequently results in decreased detrusor compliance. Although poor proximal sphincter function can also occur (intrinsic sphincter deficiency), this is often masked by prostate bulk in male patients.

38. A 54-year-old woman, with a history of cervical cancer treated with radiation therapy five years ago, undergoes a TUR of a 2 cm mass above the left ureteral orifice. Final pathology reveals an inverted papilloma. On the third post-operative day, she develops continuous urinary incontinence. CT urogram reveals no evidence of upper tract pathology, perivesical abscess, or urinoma. Subsequent cystoscopic evaluation reveals a 2 cm vesicovaginal fistula at the site of the resection. The next step is:
A. cauterization of the fistula site and placement of a urethral catheter.
B. immediate transvaginal repair.
C. transvaginal repair in three months.
D. immediate transabdominal repair.
E. transabdominal repair in three months.
ANSWER=D
In a woman presenting with the acute onset of chronic incontinence following a surgical procedure, she should be evaluated for possible simultaneous upper UTI and ureteral or combined ureteral-vaginal fistulas to rule-out the presence of a perivesical abscess or fluid collection. In the absence of pelvic infection, immediate repair is justified. In the presence of a large diameter vesicovaginal fistula in an irradiated field, an abdominal approach will concurrently allow an omental pedicle flap to be interposed between the irradiated bladder and vaginal wall tissues. In the presence of an irradiated field, obliteration of dead space, good bladder drainage, control of infection, and interposition of healthy tissue are critical elements to successful fistula closure. Proximal urinary diversion with bilateral percutaneous nephrostomy tubes with delayed repair should be considered in patients where the initial evaluation suggests the presence of a concurrent pelvic abscess. An endoscopic approach with fulguration of the fistula tract and urethral catheter or suprapubic tube drainage may be considered invesicovaginal fistulas where the diameter of the fistula is < 5 mm in size and radiographic evaluations (fistulogram) suggests the presence of a long-necked and tortuous fistula.

39. A 50-year-old man is scheduled for a living-related renal transplant. He has a serum creatinine of 5.5 mg/dL and is not yet on dialysis. His non-contrast CT scan shows a 2 cm solid left renal mass. The next step is:
A. repeat CT scan with I.V. contrast.
B. radical nephrectomy and exclude patient from transplantation.
C. simultaneous radical nephrectomy and renal transplantation.
D. radical nephrectomy, transplant in two years if no recurrence.
E. partial nephrectomy, transplant in two years if no recurrence.
ANSWER=C
Incidentally discovered small asymptomatic renal tumors do not mandate a waiting period prior to transplantation. Repeating the CT scan with contrast risks further nephrotoxic injury with preexisting borderline renal function, and will not change the management of the renal mass. Although partial nephrectomy may carry the advantage of preserving additional renal mass, this is not applicable to this patient. The appropriate management in this setting is simultaneous nephrectomy and transplantation.

40. Cranberry juice may help prevent UTI by reducing:
A. urine pH.
B. urine osmolality.
C. secretory IgA.
D. bacterial adhesion.
E. interleukin 6 (IL-6).
ANSWER=D
A variety of host defense and bacterial virulence factors contribute to the pathogenesis of UTIs. Host defenses include high urine osmolality, low pH, high urea, efficient micturition, and a number of urine inhibitors of bacterial adherence (e.g., Tamm-Horsfall protein, lactoferrin, oligosaccharides, and mucopolysaccharides). Immune responses to UTIs affect hormonal immunity (secretory IgA), as well as, cytokine production (IL6, IL8). Cranberry juice contains substances that inhibit the adherence of uropathogenic bacteria to uroepithelial cells. Cranberry ingestion does not have a substantive effect on urine pH, urine osmolality, secretory IgA, or interleukin levels.

41. A neonate with a 3 cm phallus and non-palpable gonads can be confirmed to have at least one testicle by:
A. 46 XY karyotype.
B. elevated 17-hydroxyprogesterone.
C. normal LH, FSH levels.
D. normal Mullerian inhibiting substance concentration.
E. increased urinary ketosteroids.
ANSWER=D
This neonate, with a normal-sized phallus for a male (> 2.5 cm), could be a female with elevated testosterone due to congenital

adrenal hyperplasia. Therefore, an elevated testosterone does not equate with the presence of a testicle. Levels in newborns of LH, FSH, and testosterone can be normal or elevated with many intersex disorders and does not confirm the presence of a testicle. Elevated 17-hydroxyprogesterone and increased urinary ketosteroids would be findings of adrenal insufficiency, but would not confirm the presence of a testicle. An hCG stimulation test with an increase in testosterone may be of value, but the increase should be > 20 fold. In addition, the infant may already have an excessively elevated testosterone level which could mask the findings of an hCG stimulation test. A 46 XY karyotype does not confirm the presence of testes. Mullerian-inhibiting substance is secreted by testicular Sertoli cells and is the one test which would diagnostically confirm the presence of at least one testicle.

42. A 78-year-old man had a radical cystectomy and ileal conduit for recurrent bladder cancer. Pathology showed stage pT3bN0M0 cancer. CT scan at one year was normal, but at two years, there was marked right hydroureteronephrosis with very thin residual renal parenchyma. Loopogram shows a tight narrowing of the right distal ureter 2 cm above the ureteroileal junction. He is asymptomatic and serum creatinine is 1.6 mg/dL. The next step is:

A. observation.
B. retrograde balloon dilation of the ureter.
C. percutaneous laser incision of the stricture.
D. open reimplantation of the ureter into the ileum.
E. right nephroureterectomy.
ANSWER=E

This is an unusual site for a benign ureteroileal stricture, and there is a high likelihood that this is the result of tumor recurrence in the ureter. Therefore, observation is not a good option. Endoscopic management, whether it be ureteroscopically or percutaneously, is unlikely to work, and does not establish the etiology of the obstruction. Since the kidney has little remaining parenchyma, reimplantation makes little sense, and, therefore, the best treatment is nephroureterectomy.

43. In the process of spermatogenesis, the final product of meiosis is the:

A. spermatogonia.
B. primary spermatocyte.
C. secondary spermatocyte.
D. spermatid.
E. spermatozoa.
ANSWER=D

Primary spermatocytes undergo one round of meiosis creating secondary spermatocytes which are 2N in DNA content and haploid. These subsequently undergo a second round of meiosis to form round spermatids which are 1N in DNA and haploid, which are the final products. The spermatids then eventually metamorphose into mature spermatozoa (spermiogenesis).

44. Complications associated with inguinal lymph node dissection for penile cancer are documented to occur most frequently in which of the following settings:

A. palliative indication.
B. prior chemotherapy.
C. insulin-dependent diabetes.
D. congestive heart failure.
E. obesity.
ANSWER=A

Complications of inguinal lymph node dissection can include debilitating lower extremity edema, wound infection, skin flap necrosis, DVT, hemorrhagic events, and sepsis. The greatest risk factor for these complications is palliative indication, primarily in patients with advanced disease with impending erosion into the vessels or through the skin. In the series from MD Anderson Cancer Center, complication rates (minor and major combined) were 35% for a prophylactic dissection, 36% for a therapeutic dissection, and 67% for palliative indications. In addition, most major complications occurred in the latter or "palliative" group. The reasons for the increased complication rate is presumably due to reduced lymphatic and venous drainage and compromised blood supply. Together, these factors affect the viability of skin flaps and lymphatic flow, and the majority of the complications are due to infectious causes. While diabetes, heart disease, and obesity are all important surgical considerations, they have not been directly associated with complications related to inguinal node dissection. Similarly, prior chemotherapy has not been associated directly with increased complications after inguinal node dissection.

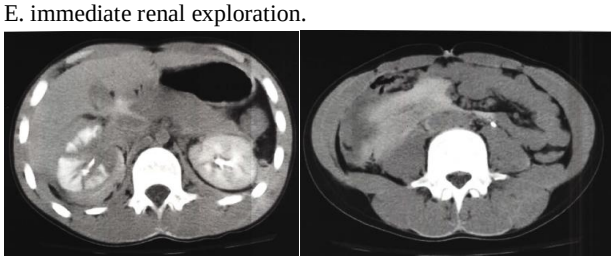
45. An 80-year-old man has urinary retention. He has bilateral pitting edema, an elevated jugular venous pulse, and a blood pressure of 200/120 mmHg. His creatinine is 4.0 mg/dL. The serum K+ and Na+ are normal. An ultrasound shows a very distended bladder and bilateral pelvicaliectasis. Three liters of urine is obtained from his bladder when he is catheterized. Urine output over the next two hours is 700mL. The next step is:

A. serial creatinine measurement.
B. replace output mL per mL with D5 1/2 Ns.
C. monitor fluid intake and output every four hours.
D. monitor postural blood pressure for two hours.
E. spot check urine for osmolality, sodium, and potassium.
ANSWER=E

All patients with an output > 200 mL/hr have post-obstructive diuresis and should be closely monitored. High risk patients with chronic obstruction, edema, congestive heart failure, hypertension, weight gain, and azotemia are most likely to exhibit a post-obstructive diuresis after the release of obstruction. In the high-risk patient, a spot check urine for osmolality, sodium, and potassium will allow for the determination of the type of post-obstructive diuresis and will provide guidance for further management. High risk patients should have vital signs, including postural blood pressure and output measured hourly. D5 1/2 NS is an appropriate replacement fluid in the patient with an elevated BUN and creatinine, but generally, replacement is given at half of the previous hour's urine output.

46. A 15-year-old boy is involved in a high-speed MVC. His vital signs are stable. Urinalysis reveals 25-50 RBC/hpf. An abdominal CT scan with I.V. contrast is shown. The next step is:

A. observation.
B. delayed CT imaging.
C. arteriography.
D. retrograde pyelogram.
E. immediate renal exploration.



ANSWER=B

Abdominal CT studies with contrast offer a fast and all-inclusive evaluation of the abdomen in cases of trauma. With the advent of rapid image acquisition, the abdominal, renal vasculature, and the renal cortex will enhance. However, delayed images of the abdomen will usually be needed to see contrast in the distal ureter. If the initial CT cuts reveal a severe renal fracture, perinephric hematoma, or perinephric fluid collection, and especially if medial extravasation of contrast is found, delayed films are usually necessary to assess for the presence of contrast in the distal ureter. The presence of a UPJ

disruption should be considered when there is absence of contrast in the ipsilateral distal ureter on a delayed CT study. CT cuts to assess for this finding are ideally taken 10-20 minutes post-contrast infusion. If delayed CT cuts reveal no contrast in the distal ureter, the next step is emergent surgery with a retrograde pyelogram to confirm the presence of the UPJ injury and subsequently surgical repair. If the UPJ and ureter are intact, the patient may be managed in a non-operative fashion. Arteriography is not indicated as vital signs are stable.

47. Stent placement after uncomplicated ureteroscopic stone extraction for a 5 mm distal ureteral calculus:
A. is indicated if intracorporeal lithotripsy is performed,
B. improves stone-free rate,
C. increases post-procedure pain,
D. is indicated if balloon dilation was performed,
E. reduces the likelihood of ureteral strictures.
ANSWER=C
Several randomized trials have revealed that ureteral stents are not required after uncomplicated ureteroscopic extraction of distal ureteral stones, even after balloon dilation of the ureter or intracorporeal lithotripsy. Ureteral strictures are uncommon after ureteroscopy for distal stones, whether or not a stent is inserted. Stents do not impact stone free rate, but do increase post-procedure pain, urinary symptoms, and narcotic use.

48. A 27-year-old woman is prescribed a ten-day course of an oral quinolone for a pansensitive E. coli UTI. Four days later, she develops a low-grade fever to 38° C and a skin rash. Urinalysis shows 1+ protein with WBC casts, occasional eosinophils, and 5- 10 RBC/hpf. Urine gram stain is negative for bacteria. Serum creatinine is 1.8 mg/dL. The next step is discontinuation of quinolone antibiotics and:
A. observation.
B. change to ampicillin.
C. change to cephalosporin.
D. oral antihistamines.
E. prednisone.
ANSWER=A
The most likely diagnosis is acute interstitial nephritis. The best treatment is to discontinue the offending drug, treat any related hypertension that may be present and limit protein intake. The vast majority of patients will have symptoms which spontaneously resolve. If symptoms persist, renal biopsy may be necessary to confirm the diagnosis. Both ampicillin and cephalosporins may cause interstitial nephritis and could actually be harmful if used in this setting. Indeed, adequate treatment for a UTI can be achieved in a single dose of medication and additional antibiotics are not indicated in this patient with a sterile gram stain at this time. The use of prednisone should be reserved following confirmation of the diagnosis with a renal biopsy. There is no role for the use of antihistamines in the treatment of interstitial nephritis.

49. A 28-year-old, paraplegic man had a sphincterotomy seven years ago and wears a condom catheter. During an evaluation for renal insufficiency, renal ultrasound reveals bilateral hydroureteronephrosis. The parameter or study most predictive of this complication is:
A. EMG.
B. CMG.
C. Valsalva LPP.
D. detrusor LPP.
E. urethral pressure profilometry.
ANSWER=D
Detrusor LPP is the most reliable urodynamic parameter to predict the risk of upper tract deterioration after sphincterotomy. A detrusor LPP of higher than 40 cm H20 indicates that the sphincterotomy has failed, and may serve as a guide to determine whether a repeat sphincterotomy is necessary. Abnormal compliance, which may be detected on CMG, may also be a worrisome finding, but there is much less established predictive value. To date, there is no correlation of urethral function tests (urethral pressure profile, Valsalva LPP, EMG) to upper tract deterioration.

50. Stage 3 prolapse in the Pelvic Organ Prolapse Quantification (POPQ) system occurs when the most distal portion of the prolapse is:
A. 1 cm or less proximal or distal to the hymenal plane.
B. 1 cm or less proximal or distal to the introitus.
C. > 1 cm distal to the hymen; entire vagina has not prolapsed.
D. > 1 cm distal to the introitus; entire vagina has not prolapsed.
E. associated with complete vaginal eversion.
ANSWER=C
The International Continence Society has established a standardized system to quantify pelvic organ prolapse. This classification is known as the POPQ system, an acronym for pelvic organ prolapse quantification. The system uses the hymenal ring as its central identification point. The hymen was chosen over the vaginal introitus because it can be more precisely located within the vaginal vault; all measurements are based from this location. This classification avoids use of the terms, cystocele or rectocele, recognizing that the actual organ prolapsing may be unable to be determined by a physical examination. The examination to determine POPQ stage is performed in a dorsal lithotomy position with the patient straining. The POPQ staging system has excellent inter-observer and intra-observer reliability and has become the standard for reporting outcomes following prolapse repair. The staging system is, however, not perfect and can be significantly affected by patient positioning, with the degree of the prolapse being more severe if the patient is examined with the head of the table raised to 45 degrees or higher. In addition, it fails to assess for unilateral or asymmetric defects. The POPQ staging system is defined as: Stage 0 - no prolapse, Stage 1 - the most distal portion of the prolapse is more than 1 cm above the hymen, Stage 2 - the most distal portion of the prolapse is +/-1 cm above or below the hymen, Stage 3 - the most distal portion of the prolapse protrudes > 1 cm below the hymen and the total vagina has not prolapsed, and Stage 4 - the entire vagina everts (i.e., complete prolapse).

51. A 64-year-old man undergoes a six core biopsy for a PSA of 5.6 ng/mL. Pathology is a Gleason 6 (3+3) prostate cancer in a single core involving less than 10% of the tissue. The other cores are normal. He prefers active surveillance. The next step is:
A. CT scan.
B. initiate finasteride.
C. repeat prostate biopsy with 12 or more cores.
D. check PSA quarterly and repeat biopsy in one year.
E. counsel patient that he is not appropriate for active surveillance.
ANSWER=C
Active surveillance is a reasonable option for patients with low-risk prostate cancer. This patient's risk profile makes him a reasonable candidate for this approach. However, a six-core biopsy is likely inadequate tissue sampling to truly identify indolent disease. Therefore, initiation of active surveillance protocol with quarterly PSA and repeat biopsy in one year is premature and immediate systematic prostate rebiopsy is the next step. Additional imaging, with either bone scan or pelvic CT scan, is unnecessary in low-risk patients and would be inappropriate in this setting. There is no data supporting the use of finasteride in the management of prostate cancer.

52. Randall's plaques are composed of:
A. calcium oxalate,
B. calcium apatite,

C. brushite.
D. hydroxyproline.
E. cholesterol.
ANSWER=B
Large amounts of Randall's plaque are unique to idiopathic calcium oxalate stone formers and are invariably composed of calcium apatite crystals. Using papillary biopsies obtained during the time of PCNL, Randall's plaque was found to initially form on the basement membrane of the thin limbs of the loops of Henle and grow by the continued deposition of calcium apatite and organic matrix. With growth, the plaque will spread through the interstitium and eventually penetrate the urothelium, exposing the plaque to urine where it will serve as an anchor for urinary solutes. Although Randall's plaque can be found in other stone formers, Randall's plaque has been found to be a prerequisite for kidney stone formation in idiopathic calcium oxalate stone formers.

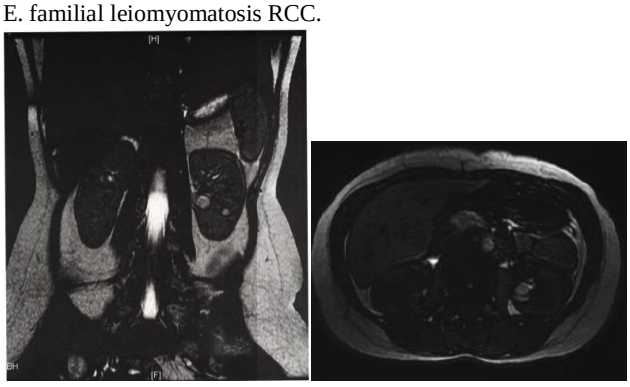
53. The C-arm fluoroscopic operational factor resulting in an increased radiation dose to both the patient and operating room personnel is:
A. increasing tube kilovoltage (kVp).
B. increasing tube current (mA).
C. decreasing image intensifier to skin distance.
D. removing the image intensifier grid.
E. increasing the X-ray tube (source) to skin distance.
ANSWER=B
The use of fluoroscopic imaging in urological surgery requires a basic knowledge of radiation protection principles so that the dose to the patient, physician, and ancillary staff can be minimized. It is important to remember that with an increase in patient size, the dose rate will be greater and accumulate faster. In terms of manipulating the operational factors in fluoroscopy, there is generally a trade-off in terms of image quality and radiation dose. Increasing the tube current results in greater image quality and increased dose to the patient and staff. Increasing the tube kilovoltage diminishes image quality (less contrast), but is usually associated with less radiation dose if the tube current is appropriately reduced. Decreasing the image intensifier to skin distance usually increases image quality depending on focal spot size and decreases the dose to the patient without significantly changing the dose to staff. Removing the grid decreases image quality as well as the radiation dose to patient and staff. Increasing the source to skin distance usually improves image quality and decreases the dose to the patient without significantly changing the dose to staff.

54. Parathyroid hormone level is suppressed in a patient with:
A. obesity.
B. a recent renal transplant.
C. renal calcium leak.
D. absorptive hypercalciuria.
E. renal insufficiency.
ANSWER=D
Parathyroid levels are suppressed in patients with absorptive hypercalciuria as a result of transient elevation of serum calcium due to increased intestinal calcium absorption. The other conditions are associated with secondary elevation of PTH due to PTH-resistance (i.e., obesity, African American), renal calcium loss, and/or elevated serum phosphorus.

55. Following TURBT for papillary urothelial carcinoma of the bladder, peri-operative instillation of mitomycin C:
A. is unnecessary for small, solitary, low grade tumors.
B. is most effective in acidic urine.
C. should be given within 24 hours of the resection.
D. should be followed by an induction course of intravesical therapy.
E. should be delayed for 24 hours if an extraperitoneal perforation occurs.
ANSWER=C
A meta-analysis of seven randomized trials comprising nearly 1,500 patients with Ta-T1 bladder cancer, with a median follow-up of 3.4 years, demonstrated that one immediate post-TURBT instillation of intravesical mitomycin C resulted in a 40% reduction in tumor recurrence. Patients undergoing resection of single or multiple tumors benefited, and benefit was not affected by tumor size. The timing of instillation, however, appears to be critical. In all studies documenting efficacy, the instillation was given within the first 24 hours post-TURBT. One study has demonstrated that if the instillation is given 24 hours after tumor resection, the risk of tumor recurrence increased two-fold. Peri-operative instillation is contraindicated in the setting of overt or suspected extra or intraperitoneal perforation or concurrent dilation of a urethral stricture or urethral injury, as severe complications, (e.g., chronic pain, bladder necrosis, necrosis of adjacent soft tissue, and necrosis of either the corporal spongiosus or cavernosum), have all been reported in these settings. Intravesical mitomycin C is most effective in alkaline urine.

56. The signal intensity of prostate cancer on T1 and T2 weighted MRI scan images is:
A. high T1 and high T2.
B. low T1 and high T2.
C. high T1 and low T2.
D. low T1 and low T2.
E. intermediate T1 and high T2. m
ANSWER=D
Prostate MRI scan, especially with combined endorectal and phase-array coils, is used in prostate cancer staging with up to 82% accuracy. The T1 and T2 weighted images are helpful in differentiating between post-biopsy hemorrhage, which presents as a high T1 and a low T2 lesion, and prostate cancer, which presents as a low T1 and low T2 lesion.

57. A 21-year-old woman undergoes resection of a cystic lung mass. The pathology reveals lymphangioleiomyomatosis (LAM). Abdominal T1 MRI scan is shown. The most likely diagnosis is:
A. VHL.
B. Birt-Hogg-Dube.
C. tuberous sclerosis.
D. hereditary papillary RCC.
E. familial leiomyomatosis RCC.



ANSWER=C
The scan reveals bilateral small renal masses. The largest of which is in the left kidney and on this T1-weighted image, the high intensity of the lesion indicates fat within the tumor. This is consistent with an angiomyolipoma. This finding in conjunction with pulmonary lymphangioleiomyomatosis (LAM) is indicative of tuberous sclerosis complex (TSC). Familial leiomyomatosis would be associated with skin fibromas and renal carcinoma. VHL does not cause pulmonary LAM. Birt-Hogg-Dube is associated with chromophobe tumors and oncocytomas. It is also associated with lung cysts which can result in spontaneous pneumothorax, but not LAM. Hereditary papillary RCC has no common pulmonary manifestations and does not cause angiomyolipomas.

58. A 23-year-old woman with cystic fibrosis takes nutritional supplements, Vitamin C, and antibiotic prophylaxis to prevent respiratory infections. She has hyperoxaluria and recurrent calcium oxalate stones. The most likely cause of her stones is:

A. Vitamin C therapy.
B. reduction of intestinal Oxalobacter formigenes.
C. high calcium diet.
D. cystic fibrosis-associated ileal absorption disorder.
E. dietary glycine excess.

ANSWER=B

Chronic antibiotic use may reduce normal levels of Oxalobacter formigenes in the intestine. This anaerobe metabolizes as much as 50% of ingested oxalate. High calcium diets are associated with decreased oxalate absorption. Few cystic fibrosis patients have ileal absorption disorders. Vitamin C and glycine, while associated with oxalate metabolism, are unlikely to increase urinary levels significantly. An emerging treatment for reduced intestinal Oxalobacter formigenes is probiotics.

59. A 45-year-old man with metastatic RCC involving the lung, liver, lymph nodes, and bone undergoes a right radical nephrectomy. His pre-operative labs include a hemoglobin of 9 gm/dL and a calcium of 11.5 mg/dL. The treatment most Likely to prolong overall survival is:

A. temsirolimus.
B. interferon alpha.
C. bevacizumab.
D. sorafenib.
E. sunitinib.

ANSWER=A

Temsirolimus is a specific inhibitor of the mammalian target of rapamycin (mTOR) kinase which is a component of intracellular Signaling pathway involved in growth and proliferation of cells. Level 1 evidence in a recent study comparing temsirolimus to interferon alpha focused on patients with a poor prognosis, (e.g., poor risk metastatic RCC patients). Poor risk metastatic RCC patients in this trial had to have at least three of the following poor risk features: LDH >1.5 times upper level or normal, Hgb below normal, calcium > 10 mg/dL, time from diagnosis of cancer > 12 months, metastases spread to multiple organs, and/or Karnofsky score = 60 or 70. This patient has multiple features that put him in a poorer risk group, including multiple sites of metastasis, anemia, and hypercalcemia. In patients with poor risk features, I.V. weekly infusion of temsirolimus, when compared to interferon, prolongs overall survival, and is the first agent that has demonstrated an overall survival advantage in this category of patients. Sunitinib, bevacizumab, and sorafenib have not been shown to improve overall survival or prolong survival in patients with multiple poor risk features.

60. A one-year-old, uncircumcised boy with spina bifida is managed with CIC and oxybutynin. Ultrasound and VCUG are normal. He has recurrent asymptomatic episodes of cloudy urine. A recent urinalysis shows 10-20 WBC/hpf and a urine culture grows 105 E. coli. The next step is:

A. observation.
B. treat with culture specific antibiotics and start prophylaxis.
C. gentamicin bladder irrigations.
D. circumcision.
E. vesicostomy.

ANSWER=A

Individuals with a neurogenic bladder that are being managed with CIC will have bacteriuria 40- 80% of the time. Only symptomatic infections (i.e., pain, fever, new onset of urinaryincontinence, or foul smelling, cloudy, urine lasting longer than three days) should be treated with antibiotics. The presence of intermittent cloudy urine and/or mild pyuria is not enough to warrant antibiotic treatment. Overtreatment of asymptomatic bacteriuria in this patient population will lead to resistant organisms that are difficult to manage. The efficacy of prophylactic antibiotics in the setting of recurrent symptomatic infections in patients on CIC is not entirely clear. Gentamicin bladder irrigations have been shown to be effective in some patients with recurrent symptomatic infections. Changing CIC to sterile technique will likely be ineffective as well as unfeasible. Circumcision can reduce the risk of infection and should be considered if recurrent symptomatic UTIs occur. Vesicostomy is not indicated for non-febrile UTIs in this patient.

61. A 40-year-old woman has chronic renal insufficiency and a creatinine of 2.5 mg/dL. The medication that will increase the serum creatinine but not alter the true GFR is:

A. captopril.
B. cephalexin.
C. trimethoprim.
D. spironolactone.
E. cisplatin.

ANSWER=C

Endogenous creatinine and creatinine clearance is the most widely used surrogate for GFR. In the presence of normal renal function, 90% of creatinine is filtered and 10% is secreted by the proximal tubules. As GFR declines, tubular secretion may contribute up to 35% of all creatinine removal at levels of 40-80 mL/min. The commonly utilized antibiotic trimethoprim blocks the tubular secretion of creatinine. Since creatinine is produced at a steady state, the serum creatinine will rise, but the GFR does not change. Captopril and spironolactone might alter renal perfusion causing a change in the GFR that leads to an altered creatinine level. Cisplatin has a direct nephrotoxic effect but would not raise creatinine without altering GFR. Cephalexin could increase the serum creatinine through an acute drug-induced injury to the kidney, such as interstitial nephritis.

62. The most important clinical or pathologic parameter associated with progression of non-muscle-invasive bladder cancer is:

A. tumor stage.
B. early recurrence.
C. location.
D. presence of mutant p53.
E. age.

ANSWER=A

Several useful prognostic parameters exist for tumor progression in patients with Ta/Tis/T1 bladder cancer. The most important of these are tumor stage, grade, and presence of CIS. Tumor size and multiplicity are other factors that may predict progression. Early recurrence is not associated with progression of the disease, except in patients with BCG treatment failure. The relationship between p53 status and tumor progression remains unclear. Age and tumor location do not impact progression risk.

63. A three-year-old girl has recurrent febrile UTIs in spite of prophylactic antibiotics. Her VCUG is shown. The next step is:

A. creatinine clearance.
B. DMSA scan.
C. MR urogram.
D. urodynamics.
E. ureteral reimplantation.

ANSWER=B

This child has massive grade 5 reflux into the right kidney. No information is available from the VCUG about the left kidney or the function of the right kidney. The abnormal calyces on the VCUG suggest that the function may be compromised. Urodynamics are often not interpretable in the face of high-grade reflux (VUR). A DMSA renal scan is needed to determine function of the right kidney, which will help determine whether reconstruction versus nephrectomy is suitable. Ureteral reimplantation is not indicated before assessment of renal function. An MR urogram will also give this information; however, the MR urogram will most likely require either a general anesthetic or closely monitored sedation. Creatinine clearance may be abnormal, but it will not be possible to tell which kidney has the deficit.

64. A 78-year-old man with dilated cardiomyopathy and obstructive pulmonary disease underwent percutaneous radiofrequency ablation of an enlarging 2.7 cm renal mass. Six months later, MRI scan demonstrates persistent contrast-enhancement within the periphery of the tumor. The next step is:

A. MRI scan in six months.
B. renal mass biopsy.
C. PET scan.
D. repeat percutaneous ablation.
E. partial nephrectomy.

ANSWER=D

Percutaneous radiofrequency ablation of small renal masses has been offered in recent years as a less invasive method of treatment. Treatment efficacy is generally determined by follow-up CT or MRI scan evaluating for enhancement within the lesion. If enhancement is noted, this is considered suggestive of residual or recurrent tumor. In most series, between 5-20% of patients treated by radiofrequency ablation require re-treatment within the first year due to persistent enhancement. While long-term data is not available, those patients undergoing a second ablative procedure appear to have a similar outcome to those treated effectively in the first ablation. While partial nephrectomy could be considered in this patient, the frequency of persistent enhancement after the first ablation suggests that a second ablation is warranted prior to proceeding with more aggressive therapy. Additionally, this is an older patient with multiple co-morbid conditions, suggesting a less invasive approach is warranted prior to surgical intervention. Biopsy is not indicated in this patient given the fact that the previous ablation may obscure histologic interpretation and that the biopsy outcome would not likely influence the desire to complete treatment. PET scan has poor specificity and would not be informative in this case of localized renal mass. As the enhancement likely represents residual tumor, it is not likely to abate with continued observation.

65. A 52-year-old woman develops continuous leakage of clear fluid from her vagina six weeks following a laparoscopic transabdominal hysterectomy for benign disease. A CT urogram is unremarkable and cystoscopy reveals a subtrigonal 1 cm vesicovaginal fistula between the posterior wall of the bladder and the mid-vagina. The next step is:

A. placement of urethral catheter and repeat evaluation in six weeks.
B. cystoscopy and fulguration of the fistula.
C. immediate transvaginal repair.
D. immediate transabdominal repair.
E. transabdominal repair in three months.

ANSWER=C

This patient has developed an uncomplicated large diameter > 5 mm vesicovaginal fistula following abdominal hysterectomy. Because of its size, it is very unlikely to close with prolonged Foley catheterization. Endoscopic treatment with fulguration is an option for management in small diameter fistula < 5 mm and is most successful if the fistula tract is long neck and tortuous. In this patient, immediate surgical repair is indicated. The outcomes are not adversely affected by intervening at six weeks. Given the location of the fistula and the transabdominal approach used in the prior hysterectomy, a transvaginal approach with interposition of labial or peritoneal flaps between the vesical and vaginal tissues at the time of repair would be optimal.

66. A 62-year-old man undergoes a TURBT for a lesion at the bladder dome. Final pathology reveals muscle-invasive small cell carcinoma. Metastatic work-up is negative. The next step is:

A. repeat TURBT.
B. neoadjuvant chemotherapy.
C. XRT.
D. partial cystectomy.
E. radical cystoprostatectomy.

ANSWER=B

Small cell carcinoma of the bladder is a relatively rare tumor that may arise in combination with urothelial carcinoma. It is usually biologically aggressive with early vascular and muscular invasion. These malignancies usually respond to but are not cured by chemotherapy regimens. Neither partial or initial radical cystectomy nor intravesical chemotherapy is appropriate in this setting. Radiation or extirpative surgery alone may result in cure rates of 5-20%. However, neoadjuvant chemotherapy followed by surgery or radiation therapy results in cure rates of 40- 65%. Therefore, the best treatment is chemotherapy followed by local treatment such as surgery or radiation if the patient does not progress.

67. A 45-year-old, obese man has hypertension, new onset diabetes, and general weakness. Two 24-hour urine collections show elevated cortisol levels. The next step is:

A. low-dose dexamethasone test.
B. plasma corticotrophin (ACTH).
C. high-dose dexamethasone test.
D. metyrapone test.
E. abdominal CT scan.

ANSWER=B

Elevated urinary cortisol levels confirm the diagnosis of Cushing's syndrome, but do not provide information about the etiology of the condition. The next step to determine the etiology is to measure a plasma corticotrophin or ACTH level. This will determine if the Cushing's is ACTH dependent or ACTH-independent. If ACTH levels are not elevated, then the likely source is adrenal, and an abdominal CT scan with attention to the adrenals is appropriate. However, it is preferable and more efficient to determine if ACTH levels are elevated as the etiology of the Cushing's is unlikely to be of adrenal origin if ACTH is elevated. The high-dose dexamethasone suppression test, and the meta pyrone tests are used in patients with ACTH-dependent Cushing's syndrome to determine if the source of excess ACTH secretion is pituitary or ectopic in nature, and are only appropriate if serum corticotrophin levels are elevated. The high-dosedexamethasone suppression test and the metapyrone test have now largely been supplanted by direct measurements of ACTH in the venous plexus downstream from the pituitary gland (inferior petrosal sinus sampling).

68. A 24-year-old man has stage 1 pure seminoma without vascular invasion. He is reluctant to undergo adjuvant XRT. An alternative to observation is one cycle of:

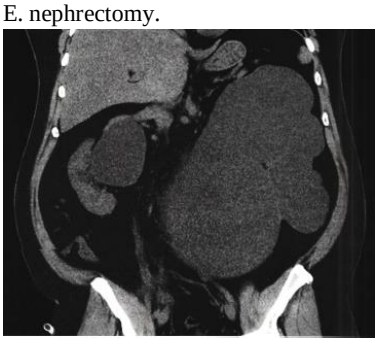
A. paclitaxel.
B. etoposide.
C. bleomycin.
D. carboplatin.
E. ifosfamide.

ANSWER=D

The success of chemotherapy for high-stage seminoma has led investigators to examine its use in low-stage disease. Its use has been supported by several non-randomized trials. In addition, the Medical Research Council recently completed a randomized clinical trial comparing carboplatin with standard retroperitoneal irradiation in the setting of stage 1 seminoma. The two treatments had similar efficacy. Therefore, for stage 1 seminoma, the correct chemotherapy agent is carboplatin.

69 An asymptomatic, 75-year-old man with multiple medical co-morbidities has the incidental finding on CT scan as shown. Serum creatinine is 1.0 mg/dL. The appropriate management of the left kidney is:

A. observation.
B. ureteral stent placement with interval changes,
C. percutaneous nephrostomy with interval changes,
D. laparoscopic pyeloplasty.
E. nephrectomy.



ANSWER=A

The patient has bilateral UPJ obstructions incidentally noted on an abdominal CT scan with the radiographic evaluation revealing little to no renal tissue on the left side. In this asymptomatic patient with advance age and multiple medical co-morbidities, observation is most appropriate. Indications for intervention include the development of symptoms, calculi, or infection. Since there is no renal tissue on the left, UPJ repair, whether laparoscopic or open, will not improve renal function and is inappropriate. If the patient became symptomatic, a nephrectomy could be considered.

70. A nine-year-old girl with spina bifida has urinary incontinence. Urodynamics shows normal capacity with good compliance and a low Valsalva LPP. She has a fascial sling and is initially dry. Four months later, she has recurrent incontinence. Ultrasound is normal. Videourodynamics demonstrate a bladder capacity of 250 mL, a pressure-specific bladder capacity of 150 mL at 30 cm H20, a detrusor LPP of 60 cm of H20, and bilateral grade 1 reflux. The next step is:

A. prophylactic antibiotics.
B. oral antimuscarinic.
C. endoscopic injection of bladder neck.
D. bladder augmentation.
E. bilateral ureteral reimplantation.

ANSWER=B

Following bladder neck procedures in children with neurogenic sphincter incompetence, the unmasking or development of detrusor hostility can be seen in a subset of children. This is manifested by a decrease in bladder compliance and/or increase in detrusor overactivity. In severe cases, hydronephrosis and secondary reflux can develop. Thus, the bladder and upper tracts must be monitored very carefully following bladder outlet procedures when augmentation is not performed concomitantly. When bladder hostility is recognized, antimuscarinics should be instituted as first line management. However, this will not be effective therapy in approximately one-third of patients. In this patient population, serial urodynamic studies and onabotulinumtoxinA injections can be used for management, or alternatively definitive treatment with a bladder augmentation can be pursued. In the presence of new onset of hydronephrosis and VUR, antibiotic prophylaxis will not be adequate therapy. The outlet resistance is likely adequate for continence, and the new incontinence is more likely due to worsening bladder dynamics. Bladder augmentation without a trial of antimuscarinics would not be the next step. Ureteral reimplantation is not indicated, as the low grade VUR may resolve with bladder management.

71. A 53-year-old man with a PSA of 2.7 ng/mL undergoes 12-core TRUS prostate needle biopsy. Pathology reveals focal high-grade PIN and atypical adenomatous hyperplasia (adenosis). The next step is:

A. examine multiple deeper tissue sections of current biopsy.
B. immediate repeat 12-core TRUS biopsy.
C. immediate saturation biopsy.
D. repeat PSA in six months.
E. TRUS biopsy in six months.

ANSWER=D

The management of high-grade PIN has changed. With the standard biopsy now including 10 to12 cores, it is no longer considered mandatory for patients to undergo immediate rebiopsy of their prostate. However, in the setting of accompanying atypical small acinar proliferation (ASAP), immediate rebiopsy and/or additional examination of the original biopsy with deeper sections is usually recommended. In this case, however, the patient has atypical adenomatous hyperplasia (adenosis), which is felt to be a benign process and, therefore, does not require immediate rebiopsy. The patient, therefore, should be treated as if he has isolated high-grade PIN and should have serial PSA monitoring. If the PSA is increased in six months, repeat biopsy can be considered.

72. A morbidly obese, 55-year-old woman undergoes Roux-En-Y bypass. In order to minimize stone risk, the best treatment is:

A. aggressive hydration.
B. calcium carbonate.
C. hydrochlorothiazide.
D. potassium citrate.
E. allopurinol.

ANSWER=B

Bariatric surgery patients typically develop enteric hyperoxaluria, which should be managed with calcium supplementation. Calcium will bind intestinal oxalate, thereby reducing absorption of free oxalate, and ultimately decreasing urinary oxalate. Increasing fluids will have little effect as these patients are chronically dehydrated, and the other treatments do not address the problem.

73. A 61-year-old man with Parkinson's disease has urinary frequency, urgency, urinary incontinence, and weak stream. Pressure-flow urodynamics reveal detrusor overactivity, a sustained voiding detrusor pressure of 88 cm H20, and a maximum flow of 7 mL/sec. Cystometric bladder capacity is 275 mL. PVR is 150 mL. The next step is:

A. antimuscarinic.
B. baclofen.
C. alpha-blocker.
D. CIC.
E. laser vaporization of prostate

ANSWER=C

The urodynamic data documents involuntary detrusor contractions and bladder outlet obstruction, most likely due to BPH. The most reasonable pharmacologic approach is to use an alpha-sympathetic blocking agent. Detrusor-external sphincter dyssynergia is not seen in Parkinson's obstruction. Thus, baclofen, which is intended to induce skeletal muscle relaxation, is not indicated. Antimuscarinics may reduce involuntary detrusor contractions, but may exacerbate emptying failure, so should not be used until his emptying improves. TURP in Parkinson's patients carries with it a risk of urinary incontinence and should be utilized only in patients with definite bladder outlet obstruction due to BPH who have failed more conservative therapy. A trial of alpha-blocker is warranted prior to initiation of CIC or a TURP.

74. A 52-year-old woman is G4P4 and reports urinary incontinence with physical activities. On physical exam, she is found to leak with cough. Aa point is at -3 and Ap point is at -3, while Ba and Bp points are at -2 on pelvic exam, and she can contract her pelvic floor muscles during exam. She has no other medical problems and has not previously sought care for her incontinence. The next step is:

A. urodynamic testing.
B. pelvic floor muscle training.
C. biofeedback.
D. mid-urethral sling and cystocele repair.
E. mid-urethral sling and rectocele repair.
ANSWER=B

This patient is found to have stress urinary incontinence on exam. She has no prolapse on POP-Q testing. She has no other medical problems, and there is no reason to suspect an abnormal flow or elevated residual (which might be suspected with prolapse or prior pelvic surgery); therefore, further testing with urodynamics, particularly prior to starting non-invasive therapy, is unnecessary. Since she can contract her pelvic muscles on exam, biofeedback may not be required and she should be started on a program of pelvic floor exercises. Mid-urethral sling may be offered to patients failing conservative management.

75. A 62-year-old man with bothersome LUTS has an AUA Symptom Score of 26 despite an adequate trial of an alpha-blocker and finasteride. DRE reveals a 40 gm benign prostate. His PSA six months ago was 2.3 ng/mL. Prior to laser prostatectomy, the next step is:

A. urinalysis.
B. repeat PSA.
C. uroflowmetry.
D. cystoscopy.
E. pressure flow urodynamics.
ANSWER=A

The only recommended test prior to surgery, beyond those already mentioned, is a urinalysis. A positive urinalysis may trigger other testing. PSA was normal within the last year and need not be repeated. Cystoscopy, uroflowmetry, and postvoid residual testing are all optional. Cystoscopy may be appropriate if the size of the prostate is in doubt, particularly if it may be too large for endoscopic management. Uroflowmetry, although not specific, may be a reasonable indicator of bladder outlet obstruction. Pressure flow testing is the best assessment for outlet obstruction, but is costly, invasive, and not recommended routinely unless the diagnosis is in doubt (for example, younger men with small prostates and severe LUTS, or if there is concern for neurogenic detrusor dysfunction).

76. The most common site of sympathetic nerve injury during a RPLND is the:

A. aortorenal ganglion adjacent to the renal hilum.
B. sympathetic chain inferior to the renal artery.
C. aortic plexus posterolateral to the aorta.
D. inferior mesenteric plexus adjacent to the inferior mesenteric artery.
E. hypogastric plexus anterior to the aortic bifurcation.
ANSWER=E

Nerve-sparing RPLND can be performed for stage 1 disease. Normally, the post-ganglionic sympathetic fibers are identified below the renal vessels and are dissected out of the lymphatic tissue during a nerve-sparing RPLND. Regardless of the side of the dissection, great care is taken during dissection over the aortic bifurcation, as this is the site where the hypogastric plexus crosses anterior to the great vessels. This is the area where the sympathetic nerves are most vulnerable to injury, and this is why the aortic bifurcation is not included in the modified RPLND template.

77. A 50-year-old man is diagnosed with an asymptomatic, 15 mm stone in an anterior upper pole caliceal diverticulum. The best management is:

A. observation.
B. SWL.
C. ureteroscopy, laser incision of diverticular neck, and lithotripsy.
D. PCNL and dilation of the diverticular neck.
E. laparoscopic removal of stone and ablation of diverticulum.
ANSWER=A

If the patient is asymptomatic, no immediate treatment is necessary. There is evidence that a 24- hour urine collection will be normal as the stone is most likely secondary to urinary stasis. SWL, ureteroscopic, and percutaneous approaches are not necessary unless the patient becomes symptomatic. Indications for intervention would include pain and recurrent UTIs. In this case, if he was symptomatic, both ureteroscopic and laparoscopic approaches would be reasonable for a caliceal diverticulum in an anterior location.

78. A 52-year-old woman underwent a percutaneous needle biopsy of the right kidney. Two months later, she has hypertension. Upon examination, an abdominal bruit is heard in the right upper quadrant. A renal arteriogram demonstrates an arteriovenous fistula in the lower pole of the right kidney. She is asymptomatic with blood pressure well-controlled by medication and has a serum creatinine of 1.4 mg/dL. The next step is:

A. observation.
B. selective embolization.
C. partial nephrectomy.
D. operative ligation.
E. nephrectomy.
ANSWER=A

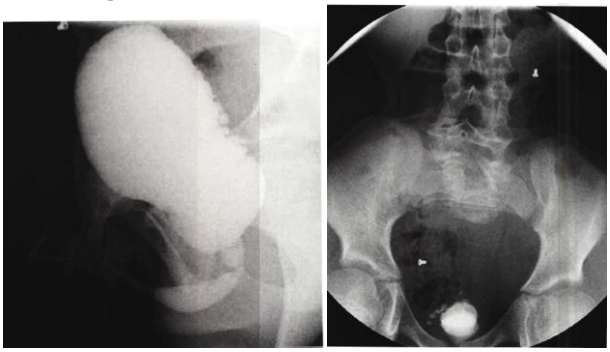
Most traumatic arterio-venous (AV) fistulas of the kidney, such as those caused by percutaneous biopsy, are asymptomatic, small, and will close spontaneously without intervention. Symptomatic fistulas can cause poorly controlled hypertension, persistent hematuria, or high-output heart failure. Symptomatic AV fistulas can be managed by embolization, operative ligation of the feeding vessels, or partial/complete nephrectomy depending upon their size and location. This patient's hypertension is well-controlled with medication, and there is, therefore, no indication for intervention.

79. A 71-year-old man with a PSA of 14 ng/mL undergoes radical prostatectomy for cT2aN0M0 Gleason score 8 (4+4) prostate cancer. Final pathology is Gleason 7 (4+3) with negative margins, however, seminal vesicle and bladder neck invasion is found. In this patient, the feature associated with the highest risk of recurrence is:

A. PSA.
B. biopsy Gleason score,
C. seminal vesicle invasion,
D. bladder neck invasion,

E. prostatectomy Gleason score.
ANSWER=C
The presence of seminal vesicle invasion is the highest risk feature of this case scenario. Although bladder neck invasion is assigned to pathologic T4 status, it has not been associated with any independent increased risk of recurrence following radical prostatectomy. The pre-operative PSA and final Gleason score in this case are categorized as intermediate risk in the D'Amico classification system. In cases of down grading from Gleason 8 to Gleason 7 on final pathologic analysis, the final pathologic grade is most closely associated with risk of relapse.

80. A ten-year-old boy has nocturnal enuresis, daytime dampness, and two febrile UTIs. Treatment with antibiotics fails to resolve his incontinence. An ultrasound reveals no hydronephrosis. KUB reveals no bladder stones, voiding and postvoid films from a VCUG are shown. The next step is timed voiding and:
A. retrograde urethrogram.
B. urodynamics.
C. alpha-blockers.
D. antimuscarinic therapy.
E. endoscopic valve ablation.



ANSWER=B
The postvoid films show missing sacral segments and abnormal lumbar vertebra. The cystogram shows a trabeculated bladder with no reflux. The voiding films show a dilated prostatic urethra, as well as, dilation of the bulbar urethra. However, there are no urethral valves, so valve ablation is not needed. Given the bony abnormalities, urodynamics, and an MRI scan of the lumbar sacral spine to rule-out a coexisting tethered spinal cord are the next diagnostic steps. Starting medications are indicated only after a baseline urodynamic study is performed. The appearance of the urethra is secondary to detrusor sphincter dyssynergia. The patient does not have a bulbar urethral stricture; therefore, a retrograde urethrogram is not indicated.

81. A 55-year-old man has a PSA of 1.7 ng/mL. His DRE reveals a suspicious prostatic nodule consistent with a cT3 prostate cancer. TRUS-guided prostatic biopsies reveal small cell carcinoma of the prostate. Metastatic evaluation is negative. The next step is:
A. systemic chemotherapy.
B. hormonal therapy.
C. XRT.
D. neoadjuvant and concurrent hormonal therapy and XRT.
E. radical prostatectomy and bilateral pelvic lymph node dissection.
ANSWER=A
Small cell carcinoma of the prostate is rare but associated with a high likelihood of metastatic disease at diagnosis and poor prognosis after treatment. Radical prostatectomy is not associated with good outcomes. Small cell carcinoma of the prostate does not secrete PSA significantly, and is apparently androgen resistant. Systemic chemotherapy is thought to be the most effective strategy followed by, or concurrent with radiation therapy. Chemotherapy agents used are similar to those used in patients with other small cell carcinoma (e.g., lung) with combinations of cisplatin and etoposide or paclitaxel or docetaxel and topotecan.

82. The most appropriate peri-operative management of a patient undergoing adrenalectomy for Cushing's syndrome is:
A. hydration, alpha-blockers, and stress-dose steroids.
B. beta-blockers, stress-dose steroids, and careful glycemic control.
C. potassium sparing diuretics and stress-dose steroids.
D. stress-dose steroids and careful glycemic control.
E. potassium sparing diuretics, stress-dose steroids, and careful glycemic control.
ANSWER=D
Patients undergoing adrenalectomy for Cushing's syndrome have an excess of corticosteroids from an adrenal adenoma or carcinoma. These patients need stress-dose steroids and careful glycemic control as they often have obesity and diabetes. Alpha-blockers and hydration are indicated peri-operatively for patients with pheochromocytoma. Beta-blockers may also be necessary pre-operatively for patients with pheochromocytoma if they are tachycardic after alpha-blockade. Potassium-sparing diuretics are important for the peri-operative management of patients with hyperaldosteronism (Conn's disease) as they often have significant hypokalemia.

83. A 48-year-old man with VHL has a 2 cm, solid, right adrenal mass in addition to multiple small (1-2 cm) bilateral renal masses. He is not hypertensive, but serum catecholamines are slightly elevated and the adrenal mass is bright on T2-weighted MRI scan. The next step is alpha-blockade and:
A. observation.
B. percutaneous biopsy of the adrenal mass.
C. partial adrenalectomy.
D. adrenalectomy.
E. adrenalectomy and partial nephrectomy.
ANSWER=C
The main indications for partial adrenalectomy are solitary adrenal gland, bilateral disease, and patients with familial syndromes. Pheochromocytoma has been treated with partial adrenalectomy, especially in patients with VHL, familial pheochromocytoma, or multiple endocrine neoplasia type 2a. Observation and biopsy are not appropriate for patients with pheochromocytoma. Open adrenalectomy and partial nephrectomy may be appropriate for patients with larger renal masses (> 3 cm). This patient will likely require multiple surgeries on both kidneys and adrenals, so the maximum functioning renal and adrenal tissue should be preserved.

84. A healthy, four-year-old boy has a one-month history of voiding every 15-20 minutes during the day. He is continent, denies nocturia, and has not had any UTIs. He has normal daily bowel movements. Urinalysis is normal. The next step is:
A. reassurance.
B. VCUG.
C. urodynamic study.
D. oxybutynin.
E. cystoscopy.
ANSWER=A
This is a typical presentation of pediatric, benign, daytime urinary frequency syndrome. The etiology of this disorder is unclear but often follows a systemic illness. Treatment is with parental reassurance, maintenance of a voiding diary and behavioral modification therapy to reward for progressive lengthening of the voiding interval. Resolution of symptoms will invariably occur within a few months. Antimuscarinic agents are rarely helpful. Imaging and urodynamic studies do not yield any significant findings. In the presence of a normal urinalysis, cystoscopic evaluation is not indicated.

85. The most likely location for corporal perforation during penile prosthesis placement is:
A. dorsally
B. ventrally
C.at the septum
D. distally (near glans)
E. proximally (near insertion)
ANSWER=C
The corporal septum is the weakest portion of the corporal body. This is of particular importance during insertion of a penile prosthesis, as the corporal septum may be perforated and an unrecognized cylinder cross over may occur after septal perforation. This complication may be avoided by placing the penis on traction, aiming the tip of the dilator laterally, and placing a spacer in the contralateral corpora while its mate is dilated. Thus, the other locations described (dorsally, ventrally, distally, and proximally) would be incorrect.

86. The abdominal radiograph in a 60-year-old man is shown. The condition that is most commonly associated with this finding is:
sarcoidosis,
diabetes mellitus.
Uncontrolled hypertension,
tuberculosis,
milk-alkali syndrome.
ANSWER=B
The paired calcified tubular structures in the center of the pelvis are the vas deferens. Calcification of the vas deferens is virtually pathognomonic for diabetes mellitus. Although tuberculosis can, on rare occasions, have similar findings. This patient has also had a left iliac fossa renal transplant which contains a radio-opaque urinary stone.

87. A recurrent calcium oxalate stone former has an isolated finding of marked hypomagnesuria on metabolic evaluation. The next step is:
A. discontinuation of allopurinol.
B. evaluate for an underlying bowel disorder.
C. oral magnesium supplementation.
D. increase intake of tofu and brown rice.
E. potassium citrate.

ANSWER=B
The most common cause of hypomagnesuria is inflammatory bowel disease, and an appropriate referral to a gastroenterologist to rule-out this disorder should be performed. The benefit of oral magnesium supplementation in the management of hypomagnesuric calcium nephrolithiasis has not been well-established. Though tofu and brown rice are rich in magnesium, the impact of dietary intervention on hypomagnesuria has not been tested. Though increased fluid intake is an empiric measure to decrease the risk of stone formation, it will not address this specific metabolic abnormality. Allopurinol does not impact urinary magnesium levels.

88. A newborn girl has a history of prenatal bilateral moderate hydronephrosis (anterioposterior pelvic diameter of 8 mm) without ureteral dilation. On day two of life, ultrasound reveals no hydronephrosis. The next step is:
A. no further evaluation needed,
B. serum creatinine at one week,
C. repeat ultrasound at six weeks of age.
D. VCUG.
E. radionuclide renal scan.
ANSWER=C
This is a common clinical scenario. Newborns are relatively oliguric for the first 48 hours of life primarily due to neonatal decreased renal blood flow and low glomerular filtration rates of the immature neonatal kidney. The normal neonatal renal physiology is associated with diminished urine production and may lead to either an underestimation of the severity of hydronephrosis and/or to the presence of a "normal" renal ultrasound shortly following birth. For this reason, it is always recommended that the child with mild to moderate antenatal hydronephrosis have a follow-up neonatal ultrasound two to six weeks following birth. There has been some debate about whether such patients also deserve a VCUG to rule-out vesicoureteral reflux. The 2010 AUA Guideline on reflux management, however, does not recommend a VCUG in patients with mild to moderate antenatal hydronephrosis unless the postnatal ultrasound reveals a dilated ureter or the presence of coexisting renal anomalies that would suggest the possibility of reflux. Serum creatinine is unlikely to be helpful in cases of mild hydronephrosis and renal scan is not indicated unless moderate or severe hydronephrosis is actually documented to be present via ultrasound.

89. A three-year-old boy, with a history of daytime wetting and recurrent infections, is found to have bilateral grade 3 VUR. The most important factor in predicting risk of breakthrough UTI is:
A. age.
B. intrarenal reflux.
C. renal scarring.
D. circumcision status.
E. bladder and bowel dysfunction.
ANSWER=C
This is a common clinical scenario. Newborns are relatively oliguric for the first 48 hours of life primarily due to neonatal decreased renal blood flow and low glomerular filtration rates of the immature neonatal kidney. The normal neonatal renal physiology is associated with diminished urine production and may lead to either an underestimation of the severity of hydronephrosis and/or to the presence of a "normal" renal ultrasound shortly following birth. For this reason, it is always recommended that the child with mild to moderate antenatal hydronephrosis have a follow-up neonatal ultrasound two to six weeks following birth. There has been some debate about whether such patients also deserve a VCUG to rule-out vesicoureteral reflux. The 2010 AUA Guideline on reflux management, however, does not recommend a VCUG in patients with mild to moderate antenatal hydronephrosis unless the postnatal ultrasound reveals a dilated ureter or the presence of coexisting renal anomalies that would suggest the possibility of reflux. Serum creatinine is unlikely to be helpful in cases of mild hydronephrosis and renal scan is not indicated unless moderate or severe hydronephrosis is actually documented to be present via ultrasound.

90. A 55-year-old patient with a mechanical aortic valve and penicillin allergy is scheduled to undergo urodynamic testing. Urinalysis on the day of testing is unremarkable. The indicated antibiotic prophylaxis is:
A. none.
B. ciprofloxacin.
C. vancomycin and gentamicin.
D. clindamycin and gentamicin.

E. trimethoprim-sulfamethoxazole.
ANSWER=A
The AUA Best Practice Statement on urologic surgery antimicrobial prophylaxis states that antimicrobial prophylaxis is not indicated prior to urodynamic testing, unless specific risk factors exist. These risk factors include: advanced age, anatomic abnormalities of the urinary tract, poor nutritional status, and immunodeficiency. Furthermore, the American Heart Association dees not recommend the use of antimicrobial prophylaxis prior to any urologic procedure, solely for the prevention of infectious endocarditis. Therefore, this patient does not require antimicrobial prophylaxis prior to undergoing urodynamic testing.

91. The most potent stimulator of aldosterone secretion is:
A. ACTH.
B. angiotensin II.
C. renin.
D. potassium.
E. sodium.
ANSWER=B
The most potent stimulator of aldosterone secretion is angiotensin II. The juxtaglomerular apparatus is sensitive to renal perfusion. Decreased perfusion stimulates renin secretion which is converted in the lungs to angiotensin II and stimulates the secretion of aldosterone. Aldosterone secretion is also under the influence of both ACTH and potassium, but they are secondary influences. Sodium has no direct influence other than through volume expansion and contraction.

92. A 53-year-old woman has recurrent stress incontinence despite two previous midurethral slings and a urethral bulking injection. A videourodynamic study shows no detrusor overactivity, with a maximal bladder capacity of 300mL. Stress urinary incontinence is documented with a Valsalva LPP of 22 cm H20 at 200 mL and again at maximum capacity. The urethra has minimal mobility with straining. The next step is:
A. pelvic floor muscle exercises with biofeedback.
B. off-label imipramine.
C. sacral neuromodulation.
D. retropubic mid-urethral polypropylene sling.
E. autologous pubovaginal sling.
ANSWER=E
This patient presents with a complex case of recurrent stress urinary incontinence (SUI) in spite of previous treatment, a fixed urethra, and a low Valsalva LPP. The only reasonable option presented would be an autologous sling. Pelvic floor exercises would be unlikely to successfully address her symptoms. Imipramine can be considered for off-label utilization for mixed incontinence, but is also unlikely to cure this degree of SUI. Sacral neuromodulation is primarily indicated for urinary urgency, and/or urge incontinence, and is not indicated for the treatment of stress incontinence. Of the two sling options presented, the autologous pubovaginal sling is the better option for recurrent intrinsic sphincter deficiency, particularly in the face of a fixed urethra.

93. A 15-year-old boy has right flank pain after being struck in the back with a lacrosse stick during a match five hours ago. Vital signs are normal. Urinalysis reveals clear urine with 10-20 RBCs, and hemoglobin is 15 g/dL. The next step is serial physical exams and:
A. repeat urinalysis.
B. abdominal ultrasound.
C. single phase CT scan of abdomen.
D. triphasic CT scan of abdomen.
E. MRI scan.
ANSWER=B
Radiographic assessment for possible genitourinary trauma is required for all symptomatic pediatric patients that have sustained blunt trauma with microscopic hematuria. A normal Focused Assessment with Sonography for Trauma (FAST) exam and serial physical exams for 24 hours will nearly rule-out all significant renal injuries and spare the patient radiation. CT scan with delayed views is recommended if the FAST exam is abnormal or gross hematuria is present. MRI scan is not indicated in the evaluation of trauma.

94. Patients with type 2 (proximal) RTA do not form renal calculi because they differ from those with type 1 (distal) RTA in the renal handling of:
A. calcium.
B. citrate.
C. bicarbonate.
D. phosphate.
E. sodium.
ANSWER=B
Patients with distal or type 1 RTA have a basic defect in eliminating H+ from the distal tubule. Associated urinary changes include both an increase in calcium and a distinct decrease in citrate levels. This combination results in most type 1 patients forming renal calculi. In distinction, type 2 RTA is caused by diminished bicarbonate reabsorption in the proximal tubule. While this defect also results in high urinary calcium levels for reasons that are not fully understood, it does not lower urinary citrate, and thus, these patients do not commonly form renal calculi. Sodium and phosphate handling are altered in both forms of RTA but do not seem to have much impact on stone formation. In patients with type 1 RTA, the administration of potassium citrate is the mainstay of attempting to minimize nephrocalcinosis and the formation of renal calculi.

95. A 40-year-old man involved in an MVC has mild lower abdominal pain and gross hematuria. Radiologic evaluation reveals a normal urethra, a pelvic fracture with a large pelvic hematoma, and a small 1-2 cm extraperitoneal extravasation from the bladder. A 26 Fr urethral catheter repetitively clots off. The next step is:
A. place three-way urethral catheter and begin continuous bladder irrigation.
B. percutaneous suprapubic tube placement.
C. cystoscopy with clot evacuation.
D. extraperitoneal exploration of bladder, repair of laceration, and catheter drainage.
E. intraperitoneal exploration of bladder, repair of laceration, and catheter drainage.
ANSWER=E
Bladder rupture should be suspected in patients with pelvic fractures. Bladder injury may be intraperitoneal or extraperitoneal. Small extraperitoneal lacerations may be managed nonoperatively with urethral catheter drainage and antibiotics. Contraindications to conservative management include gross hematuria with repetitive clot retention, concomitant rectal or vaginal injury, bladder neck injury, the presence of a foreign body in the bladder (such as a piece of bone or a bullet), or injury due to a gunshot. This patient has clot retention, and, therefore, should be managed by surgical repair. The injury should be approached by an intraperitoneal approach in those with pelvic hematomas. Entering the hematoma through an extraperitoneal approach risks release of a contained pelvic hematoma and significant hemorrhage. Continuous bladder irrigation is contraindicated in the presence of a bladder rupture since the fluid will extravasate, increasing the risk of pelvic abscess and pelvic osteomyelitis. The placement of a percutaneous suprapubic tube will not correct the injury and may be difficult and risky in the presence of a pelvic hematoma. Cystoscopy with clot evacuation will not correct the injury.

96. A recurrent calcium oxalate stone former has a urinary calcium of 298 mg/24 hr (normal < 250 mg/24 hr). He is interested in alternatives to traditional medical therapy. The next step is to recommend:

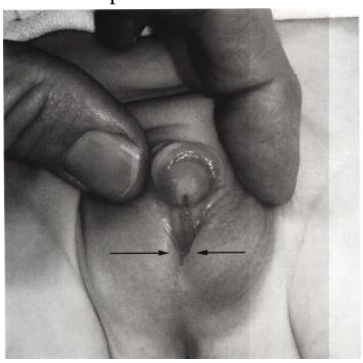
A. fish oil.
B. pyridoxine.
C. cranberry.
D. Echinacea.
E. Vitamin E.

ANSWER=A

Fish oil is an effective, first-line therapy for mild-moderate hypercalciuria. Fish oils are rich in n-3 fatty acids, more specifically eicosapentaenoic acid (EPA), which undergoes the same pathway of eicosanoid metabolism as the n-6 fatty acids found more commonly in Western diets. EPA is an essential dietary fatty acid as humans are unable to synthesize it from its precursor fatty acid, linoleic acid. EPA is found mainly in such cold-water seafood as salmon, mackerel, tuna, herring, sardines, bluefish, trout, whitefish, and striped bass. Fish oils are sold in pill and liquid form as a source of n-3 fatty acids. EPA is thought to have a protective role in preventing nephrolithiasis by decreasing urinary calcium and oxalate excretion through alteration of prostaglandin metabolism. EPA competes with arachidonic acid for cyclooxygenase, resulting in the formation of less PGE2. When PGE2 is inhibited, urinary calcium excretion is reduced. Decreased PGE2 also leads to an activation of the nephron Na/K/2Ca transporter, which results in increased renal calcium reabsorption. Greenland Eskimos, a population which has an extraordinarily low incidence of renal stone disease, consume approximately 5 to 10 gm of n-3 fatty acids daily. Most human clinical trials using fish oils have given 1200-1800 mg daily to their subjects. None of the other vitamins or supplements listed have any impact on calcium metabolism.

97. In the patient whose external genitalia are shown, the arrows denote the urethral meatus. The embryologic origin of the structure that may cause difficulty with catheterization is:

A. Mullerian duct.
B. mesonephric duct.
C. urorectal septum.
D. urogenital sinus.
E. urethral plate.



ANSWER=A

A prostatic utricle is present in 10-15% of boys with a proximal hypospadias, and is the most common cause of difficulty in catheterizing the bladder with proximal hypospadias. The embryologic origin of the utricle is the paramesonephric duct or Mullerian duct. Remnants of the mesonephric duct give rise to Gartner's cyst, whereas, the mesonephric duct gives rise to the vas deferens and seminal vesicle. The urorectal septum divides the common cloaca into the hindgut and urogenital sinus. The urethral plate gives rise to the urethra and prostate from the urogenital sinus. A narrow urethral plate does not cause difficulty with catheterization.

98. A 48-year-old woman has an incidentally discovered 3 cm right adrenal mass on ultrasound. The next step is:

A. non-contrast CT scan.
B. contrast CT scan washout study.
C. gadolinium-enhanced MRI scan washout study.
D. 18F-dopamine PET scan.
E. 131I-MIBG radionucleotide imaging.

ANSWER=A

Adrenal incidentalomas are unsuspected adrenal masses > 1 cm in diameter identified on imaging performed for seemingly unrelated causes. Ultrasound is a suboptimal imaging modality for detecting and fully characterizing adrenal lesions. Nevertheless, many incidentalomas will be discovered on ultrasound imaging performed for unrelated reasons. An unenhanced CT scan is the first, and perhaps single best, and most easily interpreted test for intracellular lipid, and can diagnose an adrenal adenoma in more than 70% of cases. Low attenuation (< 10 Hounsfield units (HU)) on unenhanced CT scan corresponds to high intracytoplasmic lipid content, and is diagnostic for an adrenal adenoma. Ninety-eight percent (98%) of lesions with an attenuation of 10 HU or less on non-contrast CT scan are adrenal adenomas, while less than 30% of adrenal adenomas are lipid-poor (also known as, atypical adenomas) and have an attenuation of > 10 HU. If a lesion demonstrates an attenuation of >10 HU, then additional radiological evaluation can be performed, including CT washout study to help discriminate lipid-poor adenomas from other adrenal lesions. Gadolinium-enhanced MR washout studies do not exhibit the diagnostic strength of iodine-based CT washout studies, and are not commonly employed. When MRI scan is used, opposed phase chemical-shift MR imaging to evaluate for intracellular lipid content can help distinguish an adenoma from other adrenal lesions. Functional studies such as PET imaging and an MIBG scan (used to evaluate for pheochromocytomas) are not indicated in the initial evaluation of an adrenal incidentaloma.

99. A ten-year-old boy has microscopic hematuria after treatment of a febrile upper respiratory infection. Repeat urinalyses, two weeks and three months later, are normal except for 5-8 RBC/hpf. His serum creatinine is 0.6 mg/dL, and a renal ultrasound is normal. A fasting spot urine calcium creatinine ratio is elevated. The next step is:

A. cystoscopy.
B. C3 and ASO titers.
C. non-contrast CT scan.
D. 24-hour urine calcium.
E. renal biopsy.

ANSWER=D

Hematuria is one of the most common genitourinary abnormalities in children. An association with hypercalciuria and hematuria in children is well-documented. Calcium excretion exceeding 4 mg/kg is considered abnormal. In children, the collection of 24-hour urine can be difficult. A spot urine calcium creatinine ratio can be used for screening, but hypercalciuria must be confirmed with a 24-hour urine calcium. A fasting level > 0.21 or a post-prandial level > 0.28 are abnormal. It is unclear how the hematuria is produced by the hypercalciuria. However, these children are at risk for subsequent urolithiasis which has been reported in over ten percent of individuals. The imaging evaluation should include a renal ultrasound to exclude both calculi and structural abnormalities. Further imaging studies are not warranted. C3 and ASO titers are unwarranted, as this child has no red cell casts or proteinuria. The yield of cystoscopy in this pediatric population is very low. Evaluation for renal inflammatory disease or parenchymal abnormality by biopsy or contrast imaging is very low in the absence of significant proteinuria.

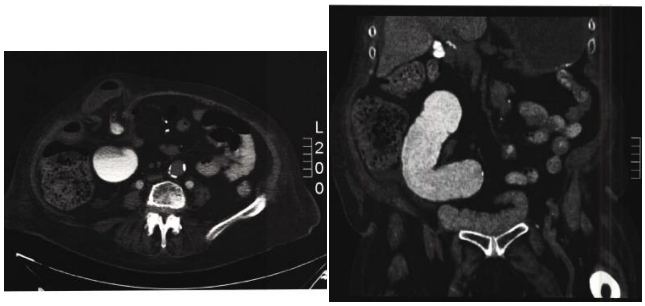
100. A 75-year-old man with a prior history of a left radical nephrectomy develops intractable hypertension and has a right renal artery ostial stenosis of > 75%. His volume status and angiotensin II levels are best characterized, respectively, as:

A. euvolemic, normal.
B. euvolemic, elevated.
C. hypervolemic, suppressed.
D. hypervolemic, normal.
E. hypervolemic, elevated.
ANSWER=D
This case exemplifies the classic one-kidney, one-clip animal model of renovascular hypertension and is similar to the findings of the two-kidney, two clip animal model of renovascular-hypertension. In these models, during the acute phase of obstruction, there is an increase in renin release and activation of the renin-angiotensin-aldosterone system (RAAS) by the ischemic kidney(s) resulting in hypertension. With the absence of a contralateral kidney, or if both kidneys are involved, contralateral natriuresis by the unaffected kidney will not occur. Consequentially, the stenotic kidney begins to conserve sodium and fluid, resulting in volume expansion and an elevated renin (transitional phase). In the chronic phase, the elevated blood pressure, excess sodium retention, and volume expansion all act as negative feedback mechanisms for suppression of renin release resulting in volume-expanded hypertension with normal renin-angiotensin- ll levels. These patients do not respond well to ACE inhibitors or angiotensin-II antagonists unless concurrent sodium restriction is prescribed. In contrast, the two-kidney, one clip model is characterized by unilateral release of renin from the ischemic kidney accompanied by contralateral suppression of renin from the normal kidney and natriuresis. Consequently, there is sodium retention from the ischemic kidney and excretion from the contralateral kidney. This results in euvolemia and hypertension dependent upon angiotensin-ll vasoconstriction. Medical management of these patients is directed at the renin-angiotensin system (i.e., ACE inhibitors and angiotensin-ll antagonists) with or without sodium restriction based on the type of renal hypertension model.

101. An 11-month-old boy has a right testicular mass. AFP is 50lU/mL and hCG is normal. Abdominal-pelvic CT scan is normal. During inguinal exploration, frozen section biopsy reveals teratoma. The next step is:
A. partial orchiectomy.
B. partial orchiectomy and serial scrotal ultrasounds.
C. orchiectomy.
D. orchiectomy and adjuvant chemotherapy.
E. orchiectomy and RPLND.
ANSWER=A
Pre-pubertal (in distinction to post-pubertal) mature teratoma of the testis have a benign clinical course. AFP levels are initially elevated in newborns and decline during the first year of life, therefore, in this patient, the AFP elevation does not indicate yolk sac elements. Treatment is partial orchiectomy after confirmation of the frozen section. Orchiectomy and further treatment, such as, chemotherapy, radiation, or RPLND are reserved for malignant tumors such as yolk sac. Serial ultrasounds are not necessary in pre-pubertal patients with teratoma.

102. A four-year-old girl is febrile with left upper pole hydroureteronephrosis and a debris-filled ectopic ureterocele. In addition to broad-spectrum I.V. antibiotics, the next step is:
A. percutaneous nephrostomy,
B. cystoscopy and ureteral stent,
C. cystoscopy and ureterocele incision,
D. open excision of ureterocele.
E. open excision of ureterocele and ipsilateral ureteral reimplant.
ANSWER=C
In a febrile but clinically stable patient, endoscopic incision has the advantage of both draining the system and the possibility that it could be a definitive treatment. The best management is cystoscopic incision of the ureterocele in order to promptly and fully drain the infected urine from the ureterocele. Endoscopic incision of the ureterocele with subsequent decompression of the upper tract would obviate the need for stent placement. Percutaneous nephrostomy placement can be of benefit in a clinically labile patient where general anesthesia for endoscopic incision of the ureterocele would be hazardous. Definitive management may require an open approach including ureterocele excision and ureteral reimplantation. However, that would not be recommended at present in this acute setting.

103. An 80-year-old woman has vague abdominal pain and no urine output for 12 hours. She underwent cystectomy and ileal conduit urinary diversion for urothelial carcinoma three years ago. Serum creatinine is normal and CT loopogram images are shown. The diagnosis is:
A. stomal stenosis.
B. intestinal stricture due to lymphoid depletion.
C. parastomal hernia.
D. stomal prolapse.
E. intestinal volvulus.



ANSWER=C
She has small bowel herniation which is compressing her ileal loop, resulting in outlet obstruction at the fascial level. Stomal stenosis can present similarly, but without CT scan findings of a hernia. Lymphoid depletion does result in late-onset loop strictures but these are generally mid-loop. Stomal prolapse does not result in obstruction. Intestinal volvulus could result in obstruction of the loop, but again, the principal finding on the CT scan is the hernia.

104. A 45-year-old man amputates his penis at the level of the proximal shaft. In addition to the repair of the urethra, the following structures should be anastomosed:
A. dorsal arteries, deep dorsal vein, and dorsal nerves.
B. cavernosal arteries and dorsal nerves.
C. cavernosal arteries, dorsal arteries, deep dorsal vein, and dorsal nerves.
D. cavernosal arteries, dorsal arteries, and deep dorsal vein.
E. dorsal arteries and dorsal nerves.
ANSWER=A
During microsurgical reconstruction of the amputated penis, the urethra is reapproximated, the two dorsal arteries, the deep dorsal vein, and as many nerve fascicles as possible, are anastomosed. The cavernosal arteries are typically not reconstructed as they are difficult to access and the dorsal arteries provide adequate circulation.

105. A 68-year-old man undergoes a partial penectomy for a high-grade Pt2 squamous cell carcinoma of the distal urethra. The margins are negative and the metastatic work-up is negative. The next step is:
A. observation.
B. adjuvant chemotherapy.
C. bilateral superficial inguinal lymphadenectomy.
D. bilateral pelvic and inguinal lymphadenectomy.
E. total penectomy.
ANSWER=A
This patient has a T2 squamous cell carcinoma of the distal urethra with negative margins. Assuming that his cystoscopy is normal and there are no other signs of disease, the proper management is

observation. Total penectomy is not advocated in the setting of negative margins. Currently, there is no data that prophylactic inguinal node dissection provides any benefit. Adjuvant chemotherapy is not indicated for T2 disease. Radical penectomy with cystoprostatectomy is also not indicated with the finding of negative margins and no evidence of disease in the bladder.

106. A 76-year-old woman has hypertension, type 2 diabetes, and mild chronic renal insufficiency associated with proteinuria. The best reno-protective strategy includes initiation of:

A. amlodipine.
B. atenolol.
C. clonidine.
D. lisinopril.
E. hydrochlorothiazide.
ANSWER=D

Blood pressure control has been identified as one of several measures to help prevent progression of chronic kidney disease (CKD). Others include: lifestyle modification, glycemiccontrol, reduction of proteinuria, protein restriction, lipid control, correction of anemia, correction of acidosis, and maintenance of fluid balance. Angiotensin II is thought to be central to the progression of CKD via both hemodynamic and non-hemodynamic mechanisms. ACE inhibitors can reduce glomerular pressure as well as proteinuria, which has a sentinel role in renal scarring. In addition, ACE inhibitors appear to improve interstitial capillary p02 levels, thus decreasing renal sclerosis risk. All other therapies, including calcium channel blockers (e.g., amlodipine), beta-blockers (e.g., atenolol), alpha-agonists (e.g., clonidine), and diuretics (e.g., hydrochlorothiazide) do not provide as much reno-protection as ACE inhibitors or angiotensin receptor blockers (e.g., losartan).

107. Clostridium difficile infections with severe dehydration and electrolyte imbalance without abdominal distension or ileus are best treated with:

A. oral metronidazole.
B. oral vancomycin.
C. oral vancomycin and I.V. metronidazole.
D. I.V. metronidazole and rectal vancomycin.
E. I.V. vancomycin and rectal metronidazole.
ANSWER=C

According to the American Society of Gastroenterology, diarrhea, with a positive test for Clostridium difficile with significant volume loss and electrolyte abnormalities, is defined as severe and/or complicated infection. I.V. fluid resuscitation, electrolyte replacement, and pharmacological DVT prophylaxis is recommended. In the absence of ileus or significant abdominal distention, oral or enteral feeding should be given. CT scan of the abdomen and pelvis is recommended. Vancomycin, orally or via the enteral tube at 125 mg PO four times daily plus metronidazole 500 mg I.V. three times daily, is strongly recommended in the guidelines. Oral metronidazole is recommended for mild to moderate infection and considered under treatment for severe cases. Single agent treatment with vancomycin alone is also considered undertreatment. Rectal vancomycin and/or metronidazole is reserved for severe infection with ileus, abdominal distention, or toxic colon.

108. A patient complains of stress urinary incontinence one year following radical prostatectomy. Physical evaluation confirms stress incontinence. However, videourodynamic studies fail to document stress incontinence with Valsalva maneuvers at 150 mL, 250 mL, and end-fill capacity of 500 mL with the patient reaching Valsalva intra-abdominal pressures of > 60 cm H20. The next step in the videourodynamic test is:

A. instill more volume.
B. remove the urethral catheter and repeat the Valsalva maneuver.
C. perform straining, tapping and Crede maneuvers to attempt to elicit involuntary bladder contractions.
D. increase Valsalva efforts to attempt to obtain pressures of > 100 cm H20 pressure.
E. have patient void and check postvoid residual urine.
ANSWER=B

The determination of stress urinary incontinence (SUI) secondary to sphincter deficiency should be performed at bladder volumes of 200 mL or greater, and require that the patient reaches Valsalva intra-abdominal pressures of greater than OR equal to 60 cm H20. Failure to reach these intra-abdominal pressures or bladder volumes during the performance of a videourodynamic study are two of the main reasons for a false negative test for sphincteric incontinence. In the presence of a urodynamic study reaching adequate bladder volumes and adequate Valsalva pressures, the next most common cause for a videourodynamic to fail to diagnose sphincteric incontinence is the presence of an indwelling catheter during the time of urodynamic study. An indwelling catheter may prevent demonstration of SUI at the time of testing by causing a physical obstruction of a coexisting bladder neck contraction, or alternatively, by causing spasm of the urethral sphincter related to catheterization. In these situations, the urethral catheter should be removed while at maximum bladder capacity and a Valsalva maneuver performed. Leakage can be confirmed by the concurrent use of video portion of the study. If no leakage is found, the patient should be requested to void and confirmation of complete bladder emptying noted, to rule-out the possibility of coexisting impaired detrusor contractility and overflow incontinence. Alternatively, a simple postvoid ultrasound residual could have been performed as part of the initial evaluation in a patient with post-prostatectomy urinary incontinence to rule- out this possibility. The use of straining, tapping, and Crede maneuvers are classically used in a patient with an underactive bladder in an attempt to elicit a detrusor contraction when the patient is unable to void on request. Valsalva intraabdominal pressures of 100 cm or higher are required to evaluate for hypermobility of the bladder neck in women complaining of stress urinary incontinence.

109. A 67-year-old woman is on active surveillance for a 3 cm renal mass. Initial percutaneous biopsy demonstrated oncocytoma. Her first follow-up imaging at three months shows no change. The next step is annual history, physical exam, and:

A. observation.
B. repeat biopsy at one year.
C. annual abdominal imaging (ultrasound or CT or MRI scan),
D. annual abdominal imaging (ultrasound or CT or MRI scan) and chest X-ray.
E. repeat biopsy at one year and annual abdominal imaging (ultrasound or CT or MRI scan).
ANSWER=D

Patients with an oncocytoma, or small renal tumors with indeterminate histology, should be followed with the same imaging protocols used for untreated, low risk (cT1, NO, Nx) renal cancer patients. This recommendation for benign tumor follow-up is based on two concerns: 1) benign tumors can exhibit substantial growth patterns over time that may threaten destruction of the renal unit by compression/invasion of surrounding parenchyma and vascular structures; 2) although the accuracy of percutaneous biopsy has improved substantially in the past several years, the pathologic differentiation between oncocytoma and oncocytic neoplasms (e.g., chromophobe renal cell carcinoma) and renal cell carcinoma can at times be difficult, with the true pathology of the mass only coming to attention by rapid tumor growth. The purpose of routine imaging of these benign neoplasms is, therefore, to capture undue tumor growth and allowing for expedient surgical/ablative intervention and avoidance of radical nephrectomy. AUA Guidelines for the follow-up of renal cancers and untreated low-risk tumors, including oncocytoma, include: 1) history and physical examination; 2) basic

laboratory testing to include blood urea nitrogen (BUN)/creatinine, urine analysis (UA), and estimated glomerular filtration rate (eGFR); 3) continued renal imaging (US, CT or MRI scan) at least annually, and annual chest X-ray (CXR) to assess for pulmonary metastases. Repeat biopsy is not indicated or warranted for the routine follow-up of such patients, as therapeutic intervention is based on subsequent neoplasm growth rate.

110. A 16-year-old girl with spina bifida and a ventriculoperitoneal shunt has abdominal pain, fever, nausea, and vomiting. She has a prior augmentation cystoplasty, Mitrofanoff channel, and bladder neck ligation. A conventional cystogram is normal. A catheter is placed, and I.V. antibiotics are initiated. The next step is:

A. observation.
B. abdominal ultrasound.
C. CT cystogram.
D. endoscopy of the augmented bladder.
E. shunt series.
ANSWER=C

Spontaneous bladder perforation following enteric bladder augmentation occurs in 8 to 10% of cases, most commonly presenting with signs of peritonitis and acute abdomen. It can be life-threatening, especially in the neuropathic population, as often their neurologic deficit causes atypical presenting symptoms and sepsis can occur rapidly. Late perforations most often occur in the bowel segment, approximately 1 cm from the anastomotic line. A standard cystogram has a high false negative rate, and a CT cystogram is recommended in patients with abdominal symptoms suggestive of bladder rupture. While most perforations are managed with laparotomy and primary closure, conservative treatment with catheter drainage has been reported successful in very selected cases, usually with contained, late perforations in patients without VP shunts. Endoscopy is not diagnostic for perforation, and can lead to worsening dissemination of infected urine in the abdomen. Shunt externalization is often required due to peritonitis and contamination of the abdominal shunt catheter, but shunt series is not necessary.

111. A 65-year-old woman has bothersome frequency, urgency, and nocturia one month after autologous fascial sling. Her postvoid residual is 300 mL, and urinalysis is negative. The next step is:

A. alpha-blocker.
B. urethral dilation.
C. CIC.
D. sling loosening.
E. sling incision.
ANSWER=C

These symptoms are likely related to the sling being too tight leading to her de novo symptoms. The best option at this time would be to initiate CIC to allow for adequate emptying and minimization of symptoms. Alpha-blockers would not impact this anatomic obstruction. Urethral dilation is likely to be ineffective. Fascial slings tend to loosen up over time, and with the use of CIC, her residuals can be continually monitored for possible improvement. Sling loosening would not likely be effective. Sling incision should be considered if these symptoms do not improve with time. The optimal time for sling incision post-sling placement is not known, though many authors advocate waiting three to four months after the sling has been placed. This is certainly different than how obstruction is managed after mid-urethral sling, with many considering sling incision within the first month after sling placement.

112. An icteric, one-week-old boy has a right upper quadrant mass and scrotal ecchymosis. Ultrasound shows a complex, right suprarenal mass with internal echoes. Labs demonstrate anemia and normal plasma catecholamine levels. The next step is:

A. repeat ultrasound in two weeks.
B. needle biopsy of the mass.
C. ultrasound-guided percutaneous drainage.
D. bone marrow aspiration.
E. adrenalectomy.
ANSWER=A

This patient has had an adrenal hemorrhage and displays the classic triad of mass, anemia, and jaundice (secondary to blood absorption from the retroperitoneum). Males can present with scrotal hemorrhage. Ultrasound is the best way to confirm the diagnosis, and after excluding neuroblastoma, is an ideal follow-up tool. CT scanning often requires heavy sedation or anesthesia in the very young child. Biopsy and surgery are not required. Spontaneous complete resolution will usually occur within months.

113. A 33-year-old man with erectile dysfunction has a testosterone of 179 ng/dL. He takes chronic opioids for back pain. His wife is pregnant with their first child, and they would like to have more children. The next step is:

A. wean opioids,
B. testosterone gel.
C. testosterone injection,
D. urethral alprostadil suppositories,
E. sex therapy.
ANSWER=A

Roughly 74% of men who take chronic opioids will have low testosterone. Opioids have been shown to have an inhibitory effect on gonadotropin-releasing hormone secretion in the hypothalamus, thus, to decrease gonadotropin production and testosterone production. Weaning opioids may result in an increase in serum testosterone levels. Because this couple wants to have children in the future, exogenous testosterone with gels and injections should not be used as this can impair semen parameters. The likely cause of this patient's erectile dysfunction (ED) is his low testosterone, thus, sex therapy will probably not solve his ED problem. Urethral alprostadil suppositories should not be used during unprotected intercourse with a pregnant partner, as this may induce uterine contractions, and should not be used in couples trying to achieve pregnancy.

114. A 52-year-old man has new onset, bright red blood in his nephrostomy tube three days after right PCNL. He is hemodynamically stable; however, his hemoglobin has decreased from 13 mg/dL to 10 mg/dL. CT scan reveals a right perinephric hematoma. The next step is:

A. bed rest and serial hemoglobin levels.
B. nephrostomy tamponade catheter.
C. inject fibrin glue.
D. nephroscopy and fulguration.
E. selective angioembolization.
ANSWER=E

Delayed bleeding following percutaneous nephrolithotomy indicates the presence of an arteriovenous fistula or arterial pseudo aneurysm. New onset bright red blood favors an arterial pseudo aneurysm. The next best step is selective angioembolization. The pseudo aneurysm is at risk to bleed, so bed rest is not appropriate in this scenario. A nephrostomy tamponade catheter and/or fulguration is most effective for immediate bleeding following the nephrolithotomy procedure. Renal exploration is reserved for recalcitrant bleeding if angioembolization fails or life threatening bleeding ensues.

115. A 28-year-old, healthy woman has dysuria and frequency. Examination shows suprapubic tenderness and urinalysis reveals pyuria. Her pregnancy test is negative. The next step is:

A. urine culture.

B. single dose of trimethoprim/sulfamethoxazole.
C. single dose of ciprofloxacin.
D. three-day course of trimethoprim/sulfamethoxazole.
E. three-day course of ciprofloxacin.
ANSWER=D
This woman has an uncomplicated UTI. Urine culture is not necessary when symptoms are present, she has no risk factors for a complicated UTI, and urinalysis reveals pyuria and/or bacteriuria. Trimethoprim/sulfamethoxazole is the best empirical agent for uncomplicated UTI in women. Quinolones should be reserved for cases of recurrent UTI or a history of trimethoprim/sulfamethoxazole resistance. Three-day therapy is the preferred treatment regimen for uncomplicated cystitis in women. Single dose therapy has a high rate of recurrence.

116. After two weeks of behavioral therapy and oxybutynin, a 64-year-old woman continues to report frequency and urge incontinence. She has minimal side effects from the medication, and her urinalysis is normal. The next step is:
A. continue present therapy.
B. stop oxybutynin, start solifenacin.
C. add mirabegron.
D. cystoscopy.
E. intravesical onabotulinumtoxinA injections.
ANSWER=A
According to the AUA Guidelines on overactive bladder (OAB), a therapeutic trial of therapy is a minimum of four to eight weeks for pharmacologic therapy and eight to twelve weeks for behavioral therapy. This patient has only been treated for two weeks, and further improvement may be seen with her present management plan. A change in oral therapy (solifenacin or mirabegron) should be considered only after she has failed an adequate trial length of her present therapy. Failure is defined as lack of improvement after four to eight weeks of pharmacologic therapy and/or the development of intolerable pharmacologic side effects. OnabotulinumtoxinA is indicated for patients that have failed oral pharmacologic therapy. In the routine evaluation of the OAB patient, cystoscopy is not indicated unless the screening urinalysis is abnormal.

117. The best initial therapy for post-prostate biopsy sepsis is:
A. ciprofloxacin.
B. gentamicin.
C. imipenem.
D. piperacillin/tazobactam.
E. trimethoprim/sulfamethoxazole.
ANSWER=C
Recent studies on post-prostate biopsy sepsis have noted significant resistance to fluoroquinolones (90%), piperacillin (72%), trimethoprim/sulfamethoxazole (44%), and even gentamicin (22%). However, minimal to no bacterial resistance is noted to the carbapenems (imipenem and meropenem) and amikacin. In addition, the oral second (Cefuroxime, Cefaclor) and third-generation cephalosporins (Cefixime, Cefdinir) maintain a good bacterial sensitivity pattern.

118. A six-year-old girl has low volume urinary incontinence and two documented afebrile UTIs. Timed voiding and treatment of constipation have only helped modestly with incontinence, and she had a third afebrile UTI. Uroflowmetry with EMG shows a voided volume of 180 mL with a low plateau-Shaped curve and increased pelvic floor activity at the time of voiding. PVR is 50mL. The next step is:
a. biofeedback.
B. antimuscarinics.
C. VCUG.
D. CIC.
E. onabotulinumtoxinA injection in the external sphincter.
ANSWER=A
The low plateau-shaped curve and elevated PVR are indicative of bladder outlet obstruction, and the increased pelvic floor activity suggests uncoordinated detrusor-pelvic floor function during voiding. The absence of other neurologic signs or symptoms, high volume incontinence, or high PVR would make neurogenic bladder less likely. VCUG is not necessary in the absence of febrile UTIs to rule-out reflux, although imaging of the outlet can show sphincteric dysfunction during voiding. Antimuscarinics are contraindicated in the setting of elevated PVR without CIC. The PVR volume is not of a sufficient volume to warrant CIC, and CIC is unnecessarily invasive. Biofeedback has been shown to normalize micturition pattern to improve emptying, incontinence, and frequency of UTI. OnabotulinumtoxinA injection in the external sphincter can be used in refractory cases but is not approved for use in the sphincter or in children. Alphablocking agents have been shown to be effective but do not offer the potential of a long-term cure.

119. As compared to conventional laparoscopic radical nephrectomy, hand-assisted nephrectomy is associated with:
A. prolonged ileus.
B. prolonged hospitalization.
C. increased wound complications.
D. increased narcotic requirements.
E. increased port site metastases.
ANSWER=C
Hand-assisted laparoscopic radical nephrectomy is comparable to conventional laparoscopic techniques by all measures of peri-operative and oncologic outcomes except for higher wound complications, such as hernias and infections at the hand-port site. The published incidence of these complications with hand-assisted nephrectomy is approximately 4-9%.

120. An 81-year-old man has muscle-invasive urothelial carcinoma of the bladder with multifocal CIS. Metastatic evaluation is negative. GFR is 48 mL/min/1.7 m2. The next step is:
A. chemoradiation therapy.
B. cisplatin-based chemotherapy followed by radical cystectomy,
C. carboplatin-based chemotherapy followed by radical cystectomy,
D. radical cystectomy.
E. radical cystectomy followed by adjuvant chemotherapy.
ANSWER=D
The patient presents with muscle-invasive bladder cancer (cT2) with a notable history of renal insufficiency and advanced age. Nevertheless, he remains a candidate for radical cystectomy and this should be the primary recommendation. Comorbidities, not age, should be used when deciding on radical cystectomy, and surgery can and should be considered for this patient as multiple series have demonstrated benefits of radical cystectomy in elderly patients with invasive disease. Multifocal CIS is a contraindication for chemoradiation therapy alone. Neoadjuvant chemotherapy is intended for patients with operable clinical stage T2 to T4a muscle-invasive disease. Although the data available supports the use of either M-VAC (Methotrexate, Vinblastine, Adriamycin, and Cisplatin) or CMV (Cisplatin, Methotrexate, and Vinblastine) as neoadjuvant chemotherapy, it has been estimated that more than 50% of patients are ineligible for cisplatin-based chemotherapy because of impaired renal function or medical comorbidities. This patient has impaired renal function that will preclude the use of cisplatin-based neoadjuvant chemotherapy. In patients with compromised renal function, carboplatin + gemcitabine has been utilized. However, the efficacy of carboplatin-based regimens in the neoadjuvant setting is unproven and may contribute to a delay in definitive surgery without a known oncologic benefit. Adjuvant chemotherapy has been advocated for high-risk patients (pT3-4, N+ patients) in an effort to delay recurrence and prolong survival. Unfortunately, the question

of the true benefit of adjuvant chemotherapy in high-risk patients with pT3, pT4, and N+ disease is currently unknown. Although this patient may be a candidate for adjuvant chemotherapy, the decision to pursue such an approach will depend on his pathologic staging, and is, therefore, not a foregone conclusion.

121. A recurrent calcium oxalate stone former has a urine calcium excretion of 180 mg/day (normal < 200 mg/day) and a uric acid excretion of 950 mg/day (normal < 800 mg/day). The next step is:

A. allopurinol.
B. chlorthalidone.
C. hydrochlorothiazide.
D. potassium citrate.
E. triamterene.
ANSWER=A

Clinicians should offer allopurinol to patients with recurrent calcium oxalate stones who have hyperuricosuria and normal urinary calcium. A prospective randomized, controlled trial demonstrated that allopurinol reduced the risk of recurrent calcium oxalate stones in the setting of hyperuricosuria (urinary uric acid excretion > 800 mg/day) and normocalciuria. Whether the drug is effective in patients with hypercalciuria has not been established. Hyperuricemia is not a required criterion for allopurinol therapy. In addition to medication, limiting non-dairy animal protein may maximize the efficacy of allopurinol. Chlorthalidone and hydrochlorothiazide would be indicated in the setting of hypercalciuria. Potassium citrate is indicated for hypocitraturia, which is not present either. Triamterene, although it is a potassium-sparing diuretic, should be avoided as stones of this compound have been reported.

122. A 65-year-old man with metastatic clear cell RCC demonstrates progression after initial treatment with sunitinib therapy. His performance status is good. Level 1 evidence supports the use of:

A. bevacizumab.
B. sorafenib.
C. pazopanib.
D. temsirolimus.
E. everolimus.
ANSWER=E

Everolimus (RAD001) is an orally administered inhibitor of mTOR. In the RECORD 1 trial which compared everolimus to placebo in a phase 3 prospective randomized trial of patients who received previous targeted therapy, progression-free survival was improved in the everolimustreated patients (4.0 vs. 1.9 months). As such, treatment with everolimus is a category 1 recommendation after tyrosine kinase inhibitor therapy according to the NCCN Kidney Cancer panel. Axitinib is also a category 1 recommendation for this group of patients. A variety of other studies have evaluated the use of temsirolimus, bevacizumab, and sorafenib in the setting of failure after initial therapy and each of these agents have shown some effect. However, given the limited outcomes, these agents are given a category 2A recommendation in the recurrence. The NCCN guideline panel considers pazopanib a category 3 recommendation because no data exists for this drug in this setting.

123. Fifty boys were equally randomized to urethral stent or no urethral stent following hypospadias repair. Ten boys in the stented group and four boys in the non-stented group reported bladder spasm pain. The best test to determine if there was a significant difference regarding bladder spasm relative to stent status is:

A. Fisher's exact test.
B. Chi-square test.
C. analysis of variance (ANOVA).
D. logistic regression.
E. Pearson correlation coefficient.
ANSWER=A

There are several appropriate analyses in the setting of a trial with a binary variable. Fisher's exact test should be used when the expected number of subjects in any subgroup is below five. Chi-square test is also appropriate when the dependent variable is measured as a binary variable, and any of the expected sample size of subjects per subgroup is five or greater. ANOVA is used to compare more than two groups. Logistic regression would be the appropriate test if there was an additional independent variable. The Pearson correlation coefficient is the appropriate test when assessing the relationship between two variables.

124. A 66-year-old man with advanced prostate cancer is starting abiraterone therapy. The addition of prednisone is necessary in order to:

A. decrease inflammatory response and pain.
B. reduce nausea and anorexia.
C. minimize side effects of binding to CYP17.
D. inhibit the nuclear translocation of the androgen receptor.
E. decrease microtubule assembly.
ANSWER=C

Abiraterone acetate is a specific, potent, and irreversible inhibitor of CYP17. CYP17 both facilitates the conversion of cholesterol to androstenedione and dehydroepiandrosterone (DHEA), made in the adrenal glands, and also inhibits the conversion of secondary androgens into testosterone and dihydrotestosterone. CYP17 activity can be inhibited by both ketoconazole and abiraterone acetate; however, ketoconazole competitively inhibits CYP 17. Its pharmacological effectiveness is, therefore, a reflection of the concentration of ketoconazole within the cell and are temporizing in nature. By contrast, once abiraterone acetate binds to a molecule of CYP17, the CYP17 molecule is permanently disabled. Because abiraterone effectively shuts down the effects of CYP17, it inhibits the synthesis of androgens by both the testes and the adrenal. The completeness of this blockade will lead to loss of inhibitory feedback on the pituitary gland, resulting in excess adrenal stimulation and a build-up in steroid precursors that will be diverted into alternative pathways that will eventually result in an increased production of aldosterone. The increase in mineralocorticoids leads to fluid retention and hypokalemia. To prevent this complication, low dose prednisone is administered to enhance a negative feedback on the pituitary system. Although steroids can help reduce inflammation, bone pain, nausea, and anorexia in any cancer patient, steroids are not used for this indication during treatment with abiraterone. Enzalutamide, not abiraterone, is involved in the process of nuclear translocation of the androgen receptor as part of prostate cancer anti-tumor activity. Abiraterone is not involved in cellular microtubule assembly; this is the anti-tumor mechanism of docetaxel.

125. The human papillomavirus (HPV) vaccine:

A. is effective if the individual has been previously exposed to HPV.
B. should be administered before the onset of sexual activity.
C. is FDA-approved for females only.
D. may cause a mild, transient HPV-like outbreak.
E. is effective against all known HPV subtypes.
ANSWER=B

Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States and worldwide. The highest prevalence of genital HPV is found in sexually active adolescents and young adults. HPV is associated with cervical and other cancers, including: penile, anal, vulvar, vaginal, and oropharyngeal. The FDA-approved HPV vaccines have been shown to be very safe. This quadrivalent vaccine (Gardasil) contains no viral DNA and is bioengineered to contain virus-like particles

produced from the major capsid protein of HPV types 16, 18, 6 and 11. There is no data to suggest that there are vaccine-specific adverse effects with the exception of rare anaphylaxis to the vaccine components. The HPV vaccines appear to be very effective, but are beneficial only if an individual has not previously been exposed to HPV. Therefore, it is recommended that the vaccine is administered before the onset of sexual activity. The duration of vaccine-induced antibodies is known to be at least five years in males and nine years in females. Clinical studies demonstrate a high degree of effectiveness in preventing

126. A 55-year-old man has lower extremity thrombophlebitis and is started on warfarin. Two weeks later, he experiences abdominal pain and has a blood pressure of 84/50 mmHg. His hemoglobin is 13.5 gm/Dl and serum potassium is 5.8 mEq/L. A CT scan demonstrates bilateral adrenal hemorrhage. The next step is I.V. fluids and administration of:

A. dexamethasone.
B. fresh frozen plasma.
C. KayexalateR.
D. fluorohydrocortisone.
E. Vitamin K.
ANSWER=A

This patient has adrenal insufficiency secondary to bilateral adrenal hemorrhage. This can occur in anticoagulated patients, typically during the first three weeks of therapy. The initial therapy should be administration of I.V. fluids and glucocorticoid therapy. Fresh frozen plasma is not acutely indicated with an adequate hemoglobin level. Kayexalate will help lower a high potassium but not improve the hypotension from adrenal steroid deficiency. Chronic but not acute adrenal insufficiency is treated with fluorohydrocortisone. Vitamin K will help restore clotting factors depleted by warfarin therapy, but is not the initial therapy for this patient.

127. A 28-year-old man with NSGCT has a serum AFP of 2,500 Lu/Ml, small volume retroperitoneal nodes, and liver metastases. The best choice of chemotherapy is:

A. three cycles of BEP.
B. four cycles of EP.
C. four cycles of BEP.
D. four cycles of vinblastine, ifosfamide, and cisplatin (VIP).
E. high dose chemotherapy and bone marrow transplant.
ANSWER=C

This patient has poor prognosis NSGCT because he has non-pulmonary visceral metastases. In that setting, the standard first line regimen is BEP times four cycles. EP times four cycles or BEP times three cycles are both appropriate first-line options for good prognosis disease, but not poor prognosis as is demonstrated here. The last two regimens, VIP (Vinblastine, Ifosfamide, and Cisplatin) and high dose chemotherapy with bone marrow rescue, can be used for salvage therapy in patients who relapse or are refractory to first-line therapy but are not standard first line regimens.

128. A 68-year-old man with obesity, diabetes mellitus, and dialysis-dependent renal failure has painful abdominal skin lesions and a 2 cm painful eschar on the scrotum. The next step is:

A. observation.
B. corticosteroids.
C. amphotericin B.
D. biopsy.
E. surgical debridement.
ANSWER=A

This patient has calciphylaxis, an obliterative small vessel vasculopathy that causes skin necrosis and ulceration. Calciphylaxis predominantly affects patients with chronic kidney disease; obesity and diabetes mellitus appear to be additional risk factors. Skin debridement should be carried out very judiciously, as the debrided areas tend to demonstrate poor wound healing and have little impact on the pain. Corticosteroids have not demonstrated efficacy in the management of calciphylaxis. Infections have not been implicated in the pathophysiology of calciphylaxis; therefore, antibiotics and antifungals are not indicated. Biopsy is contraindicated in this individual as these lesions are easily identified visually.

129. A 19-year-old man has pulmonary function tests showing decreased diffusion capacity for carbon monoxide (DLCO), with a CT scan showing diffuse areas of ground-glass opacity after his second cycle of BEP chemotherapy. Prior to his next cycle of chemotherapy, the next step is to:

A. discontinue bleomycin.
B. repeat pulmonary function tests.
C. administer prophylactic hydrocortisone.
D. administer granulocyte colony stimulating factor.
E. change to vinblastine, ifosfamide, and cisplatin (VIP) chemotherapy.
ANSWER=A

The side effects of cytotoxic chemotherapy for metastatic testicular cancer are well-established, as BEP chemotherapy has been a mainstay regimen for decades. The major toxicity of cisplatin is neuropathy, while the most major side effect of etoposide is bone marrow suppression. Bleomycin has pulmonary toxicity risks that have also been well-documented with an incidence of approximately 10%. Pulmonary toxicity is dose-dependent, and, thus increasing in severity with more cycles of BEP. The reported fatal pulmonary toxicity after three cycles of BEP is

130. A 17-year-old boy with cystinuria has a unilateral staghorn calculus. The next step is PCNL and:

A. D-penicillamine.
B. potassium citrate,
C. hydration with 1.5 L intake daily,
D. acetohydroxamic acid.
E. RenacidinR irrigation.
ANSWER=B

Cystinuria is an inherited autosomal recessive disorder characterized by excessive urinary excretion of cystine. Average age at first stone diagnosis is 12.2 years. The most important factors in preventing cystine stone formation in the urinary tract are lowering urinary cystine concentration and maintaining an alkaline urinary pH. Adequate hydration with fluid intake of 3-4 L per day, with waking at night to imbibe, is recommended. Potassium citrate alkalinizes the urine and increases the solubility of cystine in the urine. Renacidin irrigation of the renal collecting system is indicated for apatite (calcium carbonate) or struvite stones. Acetohydroxamic acid enhances efficacy of antibiotic therapy directed toward UTI caused by urea-splitting organisms. Penicillamine and alpha-mercaptopropionlglycine (alpha-MPG are chelating agents that combine with cystine to increase solubility and are used when hydration and alkalinization therapies fail. Penicillamine has a higher rate of adverse reactions compared to alpha-MPG.

131. A 16-year-old boy with history of spina bifida and hydrocephalus status post back closure and ventricular-peritoneal shunt placement as a neonate, has sudden onset of nausea, vomiting, and lower abdominal pain four months after bladder augmentation. A catheterized urine specimen shows 3-5 WBC/hpf with moderate bacteria and a catheterized urine volume of 120 mL. His temperature 38.0° C, and his vital signs are normal. Physical examination reveals diffuse abdominal tenderness. The next step is:

A. I.V. antibiotics.
B. abdominal and pelvic ultrasound.
C. CT cystogram.

D. cystoscopy.
E. exploratory laparotomy.
ANSWER=C
The differential diagnosis in this patient, includes cystitis, infected ventricular peritoneal (VP) shunt with secondary peritonitis, peritonitis from an alternative source (e.g., appendicitis), or perforation of the augmented bladder. The chief diagnosis to rule-out in this situation is a rupture of the bladder augment and a CT cystogram should be obtained. If a CT scan documents intra-peritoneal fluid collection around the VP shunt and the absence of a bladder perforation, strong consideration should be made for a VP shunt infection and appropriate neurosurgical evaluation is indicated. An abdominal and pelvic ultrasound may demonstrate intra-peritoneal fluid but could not differentiate an infected VP shunt with an associated fluid collection versus rupture of the augment. Cystoscopy places the individual at a higher risk of sepsis if a bladder rupture has occurred and is not as diagnostically accurate as a CT cystogram. Starting I.V. antibiotics may be appropriate, but would not allow the physician to accurately diagnose the underlying etiology. Exploratory laparotomy is not diagnostically indicated at this time.

132. A 14-year-old girl has recurrent uric acid stones. Her pediatrician has increased her fluid intake, limited dietary animal protein, and started allopurinol 50 mg/day. Urine pH is 5.5. The next step is:
A. increase allopurinol to 150 mg/day.
B. alpha-mercapotopropionylglycine.
C. limit sodium intake to < 2.3 gm/day.
D. potassium citrate.
E. increase intake of fruits and vegetables.
ANSWER=D
First line therapy in patients with uric acid stones is dietary restriction of animal proteins and alkalinization of urine to pH > 6 with potassium citrate. If this fails, then increasing allopurinol to 100-300 mg/day will reduce the urinary uric acid. Alpha-mercaptopropionylglycine is used for treatment of cystine stones. Reducing sodium intake will reduce stone risk in patients with hypercalciuria. Increase in intake of fruits and vegetables does not have sufficient clinical evidence to reduce stone occurrence in patients with low urinary citrate.

133. The event that initiates detumescence following a normal erection is:
A. a transient rise in intracorporal pressure,
B. a slow decrease in intracorporal pressure,
C. a rapid decrease in intracorporal pressure,
D. cavernosal smooth muscle relaxation,
E. endothelial relaxation
ANSWER=A
In the study of animal models of erection and detumescence, there are six to seven phases that occur. In the flaccidity or detumescence phase, there are three phases. The initial event that occurs is cavernosal smooth muscle contraction (not relaxation which initiates an erection) that causes an initial rise in the intracorporal pressure. Thus, endothelial relaxation does not initially occur. This is followed by a slow pressure decrease as the reopening of the venous channels occurs with resumption of the baseline arterial flow. The final phase is a rapid drop in intracorporal pressure leading to complete flaccidity.

134. A six-year-old boy who had a right pyeloplasty in infancy for a UPJ obstruction now has right flank pain and vomiting. An ultrasound performed six months ago demonstrated minimal hydronephrosis. Current imaging shows moderate right hydronephrosis with a 7 mm calculus at the UPJ. The next step is:
A. tamsulosin.
B. SWL.
C. ureteroscopic laser lithotripsy.
D. PCNL.
E. revision pyeloplasty and nephrolithotomy.
ANSWER=C
Tamsulosin, although not approved for use in children, has shown efficacy as medical expulsive therapy in children, but it is unlikely to be successful with a stone of this size, particularly since it has not entered the ureter. SWL is used in children with stones up to 15 mm, but has poor stone free rates in children with a history of urologic condition or reconstruction. Ureteroscopy and PCNL are preferred modalities in this situation, but ureteroscopic management is less invasive with excellent stone free rates for stones < 15 mm. Revision pyeloplasty is not appropriate since there was minimal hydronephrosis on recent ultrasound suggesting no evidence of UPJ obstruction.

135. In a morbidly obese man with erectile dysfunction, the serum androgen profile is most likely to show:
A. ↓. total testosterone, ↓, estradiol, and ↓, serum hormone-binding globulin.
B. ↓ total testosterone, ↓ estradiol, and ↑ serum hormone-binding globulin.
C. ↓. total testosterone, ↑ estradiol, and ↓, serum hormone-binding globulin.
D. ↑ total testosterone, ↓. estradiol, and ↑ serum hormone-binding globulin.
E. ↑| total testosterone, ↑ estradiol, and ↓ serum hormone-binding globulin.
ANSWER=C
The majority of testosterone that circulates is primarily bound to serum hormone binding globulin (SHBG), with albumin and cortisol binding globulin (CBG) playing lesser roles. Only 1-3% of total testosterone circulates unbound (free). SHBG production in the liver and Sertoli cells are altered by obesity, liver disease, and nephrotic syndrome. Obese males have reduced SHBG, and thus lower total testosterone, while the free testosterone levels are generally unchanged. The excess aromatase activity in visceral fat in obese men translates into greater testosterone breakdown to estradiol, which further lowers the total testosterone level and elevates the estradiol level.

136. After successful pneumoperitoneum is achieved with a Veress needle, a 12 mm trocar is inserted above the umbilicus along the mid-line without laparoscopic assistance. Upon removal of the obturator, brisk, pulsatile blood is seen emanating from the trocar associated with abrupt tachycardia and hypotension to 85/60 mmHg. The next step is to fluid resuscitate, call for a vascular surgeon, and:
A. increase insufflation pressure.
B. close trocar valve, maintain its position, and perform exploratory laparotomy.
C. remove trocar and perform exploratory laparotomy.
D. place additional trocar to assess injury.
E. place hand-assist port and repair injury laparoscopically.
ANSWER=B
This is a scenario of a significant arterial injury due to blind placement of a large bore trocar. The most likely injury, in this case, is either to the aorta or common iliac arteries from blind passage of a trocar. As the patient is rapidly becoming unstable, a vascular surgeon should be consulted, but immediate action is required. Simply increased insufflation pressure would not address this major vascular injury. With the trocar presumably still within the injured vessel, the trocar should be closed and kept in place, if possible, to allow for the exploratory laparotomy to be directed to the precise location of the injury. The trocar should not be completely removed

as it may be providing some element of tamponade of the injured vessel. Withdrawal of the trocar from the vessel lumen, in addition to the loss of pneumoperitoneum, could result in rapid exsanguination; however, if the trocar has already been withdrawn out of the injured vessel and a laparoscope placed, attempts can be made to assess the degree and site of injury laparoscopically. Rapid conversion to exploratory laparotomy should be performed, especially in the scenario of cardiovascular collapse. In such a case, the trocar and laparoscope can be angulated along the anterior abdominal wall, allowing for rapid cut down onto the trocar. As this particular patient is in rapid clinical decline, adding an additional trocar or converting to a hand-assisted technique to attempt to repair the injury laparoscopically would be too time consuming and potentially dangerous. However, in a more stable situation, both may be reasonable approaches depending on the laparoscopic experience and skill level of the surgeon.

137. A 62-year-old man had eight intralesional collagenase injections for a 60-degree dorsal penile curvature one year ago. He now has a 25-degree dorsal penile curvature and moderate erectile dysfunction unresponsive to PDE-5 inhibitor, and wants further treatment. The next step is:

A. reassurance.
B. eight additional intralesional collagenase injections.
C. eight intralesional verapamil injections.
D. penile plication.
E. insertion of penile prosthesis.
ANSWER=E

The patient is bothered by his disease, and his condition is unlikely to improve; therefore, reassurance would not be an appropriate option. Additional collagenase would be considered off-label use as only eight injections are currently indicated for treatment. In addition, collagenase injections are only indicated for greater than 30 degrees of curvature. There is no data to suggest that switching to verapamil injections would offer a better response and verapamil injections are considered off-label use. A penile plication should be avoided in men with moderate ED. The best option is insertion of penile prosthesis.

138. Two weeks after undergoing a transobturator mid-urethral sling, a 45-year-old female, long distance runner complains of severe groin pain radiating to both inner thighs. Urinalysis is normal and PVR is 10 mL. Narcotics and anti-inflammatory medications are not helpful. The next step is:

A. observation.
B. refer to pain management.
C. refer to physical therapy.
D. urethrolysis.
E. sling removal and retropubic sling.
ANSWER=A

Groin/thigh pain after transobturator sling in women with thin, athletic builds is not uncommon. Indeed, some experts believe women fitting this description should preferentially undergo aretropubic mid-urethral sling, rather than a transobturator sling. If a patient should develop groin/thigh pain following a transobturator sling, conservative therapy with NSAIDs for analgesia and the passage of time should resolve the majority of symptoms. If, however, the pain persists after six to eight weeks, consideration for referral to a pain clinic for trigger point injections and a physical therapy consultation may be of benefit. Sling urethrolysis and removal should be reserved for recalcitrant problems failing the aforementioned interventions.

139. Two years after a low anterior resection with pelvic X-ray and chemotherapy for advanced colon cancer, a 69-year-old man develops fecaluria and pneumaturia. Cystoscopy shows an irregular area in the posterior bladder wall. The next step is:

A. fulguration.
B. biopsy.
C. partial cystectomy.
D. colon resection and bladder repair with omental interposition.
E. pelvic exenteration.
ANSWER=B

This patient is at risk for a local recurrence and this may present as a fistula, especially with a history of XRT. Biopsy is indicated rather than fulguration. He eventually may need resection and appropriate therapy, but radical surgery is not indicated until a diagnosis is confirmed.

140. A 24-year-old man, with a gunshot wound shattering the L-4 vertebral body, achieves stable neurogenic bladder dysfunction nine months later. Pressure flow urodynamic studies will likely show:

A. detrusor overactivity, sphincter dyssynergia.
B. detrusor overactivity, normal sphincter EMG.
C. detrusor areflexia, sphincter dyssynergia.
D. detrusor areflexia, normal sphincter EMG.
E. detrusor areflexia, denervation potentials on EMG.
ANSWER=E

An injury to the vertebral column at L-4 injures the cauda equina, and depending on the extent of neural damage, will produce a loss of motor and sensory fibers to the bladder, pelvic floor, and external sphincter. Detrusor sphincter dyssynergia is produced by suprasacral spinal cord lesions that interrupt the ascending and descending pathways between the sacral spinal cord and the center for reflex detrusor and urethral function in the brain stem. Reflex detrusor function requires sacral root and sacral cord integrity. While an areflexic bladder faces fixed internal sphincter activity, that activity is normal and not truly dyssynergic. Since within the sacral and lumbar canal the nerve roots are intermingled, a lesion that produces detrusor areflexia would be expected to have a similar effect on the external sphincter, hence, the denervation potentials.

141. A 42-year-old man has a three month history of a 60 degree dorsal penile curvature and significant penile pain with erections. The best treatment is:

A. ibuprofen.
B. Vitamin E.
C. pentoxifylline.
D. penile stretching device.
E. intralesional collagenase injections.
ANSWER=A

According to the 2015 AUA Guideline on Peyronie's, NSAIDS are an appropriate treatment option for men presenting with penile pain in the active phase. Vitamin E is not recommended as a treatment option for men with Peyronie's disease. Pentoxifylline and penile stretching device are considered off-label use for the treatment of Peyronie's disease. Finally, intralesional collagenase injections should only be offered during the stable phase of the disease. No oral agents, such as Potaba, other than NSAIDS are indicated for the treatment of Peyronie's disease.

142. While performing a right, robotic, partial nephrectomy and during an exchange of a robotic instrument by the bedside assistant, the new instrument is inadvertently advanced into the liver. The most likely cause of this injury is due to:

A. dislodgement of instrument faceplate,
B. forceful insertion of the instrument.
C. lack of visualization of instrument tip during advancement,
D. accidental activation of instrument arm clutch button,
E. defective instrument.
ANSWER=D Unlike conventional laparoscopy, a robotic instrument must first be successfully engaged to the instrument faceplate before it can be advanced into the operative field. During

routine exchange of a robotic instrument, a safety mechanism is built into the system that allows for safe and automatic return of the instrument tip to 1 mm short of the final position of the prior instrument. In addition, the precise trajectory of the previous instrument is saved, allowing the new instrument to return to the same exact location by simply advancing the instrument once engaged by the faceplate. This feature is called the guided instrument exchange. Although all laparoscopic and robotic instruments should be inserted under laparoscopic view, this safety feature, in essence, returns the new instrument to nearly the exact same location, thus obviating the absolute need for the console surgeon to visualize the actual insertion and advancement of the new instrument tip. Taken together, this guided instrument exchange safety feature prevents "past pointing" of the new instrument into surrounding vital anatomy, whether by gentle or forceful insertion. However, once the clutch button of the robotic arm is reset, this safety mechanism is lost and the instrument requires manual introduction under laparoscopic view in coordination with the console surgeon. In the above scenario, the bedside assistant likely activated the clutch button accidentally, thus releasing the safety mechanism. Proper and successful engagement of the instrument to the faceplate would not be possible if the instrument was defective or the instrument faceplate was dislodged.

143. A 60-year-old, hypertensive man is well-controlled on a beta-blocker. CT angiography obtained for evaluation of a 3 cm, infrarenal, abdominal, aortic aneurysm incidentally reveals a 50% ostial stenosis of the left renal artery. Doppler ultrasound of the renal arteries, plasma renin, and serum creatinine are normal. The next step is:

A. serial blood pressure and renal clearance evaluations.
B. repeat CT angiogram and Doppler ultrasound of the renal arteries in one year.
C. split differential renal vein renin sampling.
D. percutaneous transluminal angioplasty.
E. percutaneous transluminal angioplasty with stent placement.
ANSWER=A

Renal artery stenosis is estimated to be the etiology of elevations in blood pressure in < 1 % of the total hypertensive patient population and in 10-20% of patients with refractory hypertension. The radiographic presence of renal arterial stenosis alone, is not, however, adequate justification to warrant a correction in a hypertensive patient. The stenotic lesion must be functionally significant, in essence, reduce blood flow in an amount sufficient to activate renin release. Classically arteriographic findings associated with an increase in renin secretion are renal arterial narrowing exceeding greater than 75 percent or greater than 50 percent renovascular stenosis with post-stenotic dilation. However, the exact degree of renal artery stenosis that would justify revascularization is not known. In patients found to have a 50% or greater arterial stenosis, duplex Doppler ultrasonographic scanning is recommended. This test is noninvasive, relatively inexpensive, can be used in patients with any level of renal function, and is both sensitive (98%) and specific (98%) for the presence of renovascular induced hypertension. Currently, this patient is asymptomatic with excellent blood pressure control and with a normal Doppler ultrasound study. Serial monitoring of blood pressure and renal function are sufficient for follow-up. In patients with a 75% narrowing, 10% may progress to complete occlusion within two years and up to 60% will progress to stage 3 or higher renal failure within six years. Consideration for interval radiologic follow-up is usually added to the follow-up protocols in this asymptomatic patient population. Split differential renal vein renin measurements are now performed very infrequently because of their limited clinical utility and need for invasive catheterization. A renal vein renin ratio of greater than or equal to 1.5 (affected to non-affected side) is considered significant for the presence of renin-dependent hypertension; its clinical utility in being able to determine who will respond to renal revascularization is controversial. However, it has been found to be useful for prognostic purposes in pediatric patients where there is an ipsilateral diminished renal function (less than 25%) and nephrectomy is a consideration for resolution of hypertension. Percutaneous transluminal balloon angioplasty +/- stenting is not indicated in this patient who does not have renovascular hypertension. Randomized, controlled trials comparing renal stent placement with balloon treatment alone have documented procedural superiority for primary stent placement. The need to reintervention in the percutaneous transluminal renal angioplasty group is approximately threefold higher (48%) compared with that of the stent group (14%). The reduced restenosis with stenting compared with angioplasty alone was not, however, associated with a significant difference in benefits in hypertension control or renal function.

144. Angiotensin II maintains GFR during conditions of hypovolemia by causing:

A. afferent arteriolar vasodilation.
B. efferent arteriolar vasoconstriction.
C. increased renal medullary blood flow.
D. renal artery dilation.
E. passive sodium absorption.
ANSWER=B

The primary and direct mechanism by which angiotensin II (ATM) maintains GFR during hypoperfusion is by efferent arteriolar vasoconstriction. The effect of vasoconstriction is greater for the efferent than afferent arteriole. ATM causes a decrease in renal medullary blood flow rather than an increase. ATM may result in renal artery constriction during hypovolemia. ATM increases aldosterone production that affects the cortical collecting tubule, activating sodium channels resulting in net sodium and water absorption.

145. A 14-month-old boy has a urethrocutaneous fistula following a hypospadias repair. The most important step for successful fistula repair is:

A. intra-operative urethral calibration.
B. use of fine absorbable sutures.
C. post-operative drip stent or catheter.
D. multi-layer closure.
E. vascularized interposition flap.
ANSWER=A

Urethrocutaneous fistula is a complication of hypospadias repair. Although all of the choices listed may reduce fistula recurrence, the most important step for a successful outcome of fistula repair is evaluation for and assurance of absence of urethral stricture distal to the fistula site. Repair, therefore, needs to include assessment for distal obstruction as well as excision of the fistula tract with closure of the urethral opening and vascularized flap coverage over the defect. Successful fistula repair requires healthy skin and subcutaneous tissue immediately surrounding the fistula site. In general, urethral stenting does not impact outcome following a straight forward urethrocutaneous fistula repair, and post-operative care requirement should be minimal.

146. A 52-year-old commercial airline pilot has asymptomatic microhematuria on a screening medical exam. CT scan demonstrates multiple bilateral renal calculi, all less than 5 mm. The next step is cystoscopy and:

A. observation.
B. medical expulsive therapy.
C. potassium citrate.
D. SWL.
E. ureteroscopy.
ANSWER=E

The patient has a vocational indication for stone removal. The procedure most likely to render him stone-free in a single procedure is ureteroscopy. As the stones are in the kidney, medical expulsive therapy is not indicated. The patient has not yet undergone metabolic work-up, so potassium citrate at this point is premature. SWL will not permit a bilateral treatment in the same session, and does not provide for immediate stone clearance so that the patient may resume his vocation.

147. A 60-year-old man is scheduled for a retroperitoneal laparoscopic radical nephrectomy. Following balloon dilation of the retroperitoneal space, a standard 12 mm trocar is inserted and secured to the fascia. During the operation, he develops subcutaneous crepitus and the end tidal C02 gradually climbs. The most likely cause is:

A. occult pulmonary bleb disease.
B. dislodgement of the trocar.
C. gas leakage around the trocar and fascia.
D. accidental entry into the peritoneal cavity.
E. entry into a venous sinus.
ANSWER=C

The use of a conventional Hasson trocar following balloon dilation in retroperitoneal laparoscopic procedures is often fraught with unique challenges, including leakage of gas around the trocar despite securing fascial sutures to the cone portion of the Hasson trocar. This occurs as the initial fascial incision is often larger than the size of the 12 mm trocar allowing for diffusion of C02 gas around the trocar and into the subcutaneous space. Subsequent systemic absorption of the subcutaneous gas results in hypercarbia. With the advent of balloon access trocars, this problem is less common than with standard 12 mm trocars that may not form as tight a seal against the fascia. The retention doughnut-shaped balloon placed on the inside of the fascia and peritoneum is secured against a foam cuff on the outside of the fascia creating a tight seal, thus minimizing gas leakage around the trocar. This patient is healthy and has no history of underlying pulmonary disease. A rupture of an occult pulmonary bleb would result in a pneumothorax but not subcutaneous emphysema. Entry into the peritoneal cavity would not necessarily increase the risk of hypercarbia. Lastly, there is no mention of bleeding or entry into a large vascular structure that would lead one to suspect venous absorption of gas.

148. A 44-year-old man is scheduled to undergo renal transplantation. Pre-operatively, he has a 1.2 cm left pelvic stone in his native kidney. The next step is:

A. SWL.
B. ureteroscopy with laser lithotripsy.
C. PCNL.
D. left nephrectomy of native kidney.
E. proceed with renal transplantation.
ANSWER=E

Asymptomatic renal stones in native kidneys do not require any pre-operative intervention. Thus, this patient should proceed with renal transplantation and the stone does not need to be addressed with procedures such as SWL, ureteroscopy, PCNL, and nephrectomy.

149. A 20-year-old, healthy woman with no prior surgical history has lower abdominal pain and no urge to urinate for 36 hours. A catheter is placed with a return of 1300 mL. Neurologic evaluation is unremarkable. The urodynamic finding most likely to suggest the definitive diagnosis is:

A. impaired compliance.
B. low amplitude detrusor contractions.
C. high voiding pressure, low flow.
D. abnormal firing on electromyography.
E. detrusor external sphincter dyssynergia.
ANSWER=D

Fowler's syndrome, first described in 1985, refers to the development of urinary retention in young women in the absence of overt neurologic disease. The typical clinical history is that of a woman younger than 30 years who has found herself unable to void for a day or more. It is noteworthy that 50% of affected patients will be found to have polycystic ovaries in association with the urinary pathology. Patients classically will not complain of urinary urgency, but invariably complain of increasing lower abdominal pain and discomfort. Clinical suspicion for Fowler's syndrome should be given if a young woman is found in urinary retention, bladder capacity of over 1 L, with no sensation of urinary urgency. On needle electrode, electromyographic (EMG) examination of the external urethral sphincter, abnormal EMG activity with complex repetitive discharges, and decelerating bursts will be noted. This abnormal EMG electrical activity impairs external urinary sphincter relaxation. Simultaneous CMG studies reveal excellent bladder compliance associated with detrusor acontractility. Due to the absence of detrusor contractility, true detrusor external sphincter dyssnergy is not seen. While the same EMG abnormality on occasion may be found in women with obstructed voiding, it will not be associated with detrusor acontractility; rather, the patient will be found to have high voiding pressures and low urinary flow rates.

150. A 64-year-old, healthy man with back pain undergoes prostate biopsy for a PSA of 126 ng/mL. The biopsy reveals Gleason 8 (4+4) prostate cancer. Bone scan reveals multiple lesions in his lumbar spine, ribs, and right scapula. CT imaging reveals pelvic and retroperitoneal adenopathy. The next step is androgen deprivation therapy and:

A. ketoconazole.
B. sipuleucel-T.
C. enzalutamide.
D. abiraterone.
E. docetaxel.
ANSWER=E

The CHAARTED trial has shown clear survival benefits to ADT and docetaxel chemotherapy in the setting of high volume, hormone-sensitive, metastatic prostate cancer. In the pivotal trial, Sweeney, et al, showed an HR of 0.61 (0.47-0.80), p=0.0003, with median overall survival advantage from 44.0 months to 57.6 months for the entire cohort. Specifically, for the high-volume disease, the HR was 0.60 (0.45-0.80), p=0.0006 with median overall survival advantage from 32.2 months to 49.2 months. The STAMPEDE trial has shown similar results, thus, confirming the efficacy of cytotoxic chemotherapy with ADT in the hormone-sensitive metastatic setting. While ketoconazole could certainly aid in attaining castrate levels of testosterone, this patient does not display impending pathologic fracture or cord compression, and there is no clear indication for the addition of ketoconazole. Sipuleucel-T, enzalutamide, and abiraterone are all approved only for metastatic castration-resistant prostate cancer.

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1. Stress-related cortisol production comes from the:

A. zona glomerulosa.
B. zona fasciculata.
C. zona reticularis.
D. entire adrenal cortex.
E. adrenal medulla.

ANSWER=B

The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

2. A seven-year-old boy suffered a dog bite to the scrotum two hours earlier. Physical examination reveals three puncture wounds and a small tear of the right hemiscrotum through the dartos muscle. The right testis is normal to palpation. The penis is normal. The next step is antibiotics and:

A. scrotal ultrasound.
B. retrograde urethrogram.
C. wound irrigation and observation.
D. operative exploration, debridement, and primary closure.
E. operative exploration, debridement, and delayed closure.

ANSWER=D

Scrotal dog bites are managed as penetrating scrotal trauma. The best management is to explore, irrigate, debride, and repair any injured structures. Antibiotics should cover Pasteurella, Streptococcus, and Staphylococcus species. Primary closure is appropriate with tetanus prophylaxis. Rabies should be excluded in the offending dog. Without evidence of testicular injury on examination, ultrasound is not necessary. Retrograde urethrogram is only needed in the presence of history or exam suggestive of urethral trauma. Human bites are managed similarly but without primary closure.

3. A 66-year-old diabetic man with peripheral neuropathy has LUTS and urgency urinary incontinence despite treatment with tamsulosin. He has a 25-gm benign prostate. CMG shows a bladder capacity of 850 mL and terminal detrusor overactivity. On pressure-flow study, maximum flow rate is 8 mL/sec, voiding pressure is 88 cm H2O, and PVR is 380 mL. Cystourethroscopy reveals mild trilobar prostatic enlargement. The best treatment is:

A. CIC.
B. CIC and oxybutynin.
C. sacral neuromodulation.
D. finasteride.
E. TURP.

ANSWER=E

Typical urodynamic findings in diabetics may include impaired bladder sensation, increased cystometric capacity, decreased bladder contractility, impaired uroflow, and, later, increased residual urine; however, some authors have suggested that detrusor overactivity is the predominant form of LUTS in diabetics. A primary question to answer in men with LUTS is the presence or absence of bladder outlet obstruction. In this patient, urodynamic data document bladder outlet obstruction, as well as probable diabetic cystopathy, in light of his decreased sensation. Cystourethroscopy excluded urethral stricture and, thus, prostatic obstruction is a primary contributor to his LUTS. While CIC, with or without medication, is an acceptable treatment, TURP will primarily address the obstruction. With resolution of the obstruction and initiation of timed voiding, he may also see an improvement in his storage symptoms. Neuromodulation is not indicated in a patient with bladder outlet obstruction. Finasteride is not indicated in this patient with a small prostate.

4. A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with six weeks of intravesical BCG therapy for a non-invasive urothelial carcinoma of the bladder and has not had tumor recurrence. The TUR specimen reveals BPH and urothelial CIS of the prostatic urethra. There is no evidence of ductal or stromal invasion. The next step is:

A. repeat BCG therapy.
B. mitomycin C therapy.
C. repeat TURP.
D. cystoscopy and cytology in three months.
E. radical cystoprostatectomy and urethrectomy.

ANSWER=A

Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial urothelial carcinoma of the bladder. If the recurrence is confined to the prostatic urethral epithelium, it may be completely eradicated by the TURP. Delivery of an additional course of BCG can effectively be administered and treat prostatic urethral CIS after TURP. This approach will reduce recurrence of the CIS as compared to observation and subsequent cystoscopy, and is thus a preferred treatment. Mitomycin C is a less effective agent against CIS than BCG. Repeat TURP is unnecessary after a typical TURP has been performed for BPH and obstructive symptoms. Radical cystoprostatectomy is necessary if the CIS does not respond to BCG. Otherwise, it is overly aggressive in this setting.

5. Renal blood flow is autoregulated primarily by:

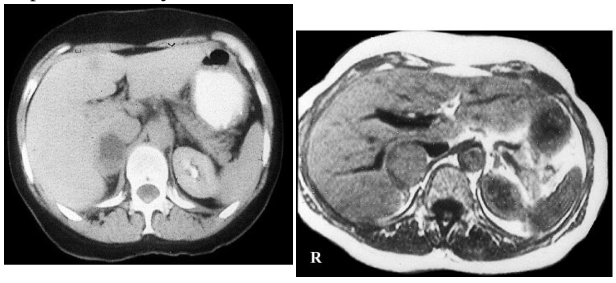
A. renal innervation.
B. the macula densa.
C. endothelin.
D. efferent arteriolar tone.
E. afferent arteriolar tone.

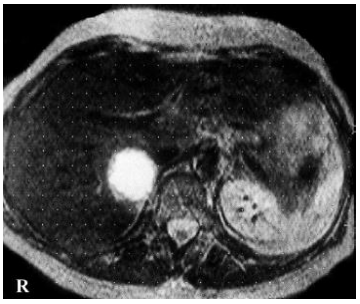
ANSWER=E

Autoregulation of GFR and renal blood flow occurs primarily through variation in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in the rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFR over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

6. A 57-year-old woman has epigastric pain. Her vital signs and physical examination are normal. A CT scan with contrast and T1- and T2- weighted MRI scans are shown, respectively. The imaging is most consistent with:

A. adrenal hemorrhage.
B. adrenal cyst.
C. adrenal adenoma.
D. adrenal myelolipoma.
E. pheochromocytoma.





ANSWER=E

A CT scan has more than a 90% accuracy for detection of pheochromocytomas. An advantage of MRI scan is the signal contrast resolution of soft tissue, often without the need for I.V. contrast. A T2-weighted MRI scan of pheochromocytomas have a characteristically bright "light bulb" appearance, although it is not pathognomonic since adrenocortical carcinoma and metastatic lesions can be bright on T2-weighted images. On the CT scan, the lesions appear to have Hounsfield units > 10, which makes an adrenal cyst, adenoma, and myelolipoma less likely. In addition, a myelolipoma would have high T1 signal on MRI scan.

7. The validity of a creatinine clearance test can best be determined by simultaneously measuring or calculating the:

A. total creatinine excreted.
B. total sodium excreted.
C. total urea excreted.
D. total urine volume excreted.
E. average urine osmolality.

ANSWER=A

The total amount of creatinine excreted each 24 hours is dependent upon muscle mass and is generally constant. An incomplete collection is suggested by an incorrect amount of total creatinine in a 24-hour specimen; the normal production of creatinine is 1.0 mg/kg/hr.

8. A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney and the left kidney is normal. The most likely diagnosis is:

A. adrenal cortical carcinoma.
B. juxtaglomerular cell tumor.
C. pheochromocytoma.
D. RCC.
E. aldosteronoma.

ANSWER=B

The history, laboratory and radiologic findings in this patient are classic for a juxtaglomerular cell tumor. These rare benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by the release of sympathetic amines and do not cause hypokalemia. Patients with aldosteronomas should have suppressed plasma renin levels.

9. The first renal function parameter impaired by ureteral obstruction is:

A. ammonia excretion.
B. bicarbonate reabsorption.
C. potassium excretion.
D. water reabsorption.
E. chloride reabsorption.

ANSWER=D

Ureteral obstruction can cause a number of deficits in nephron function. The earliest is water reabsorption, thought to be due to defects of aquaporin water channels in the collecting duct. The other transport processes listed may be attenuated, but this occurs after development of a concentrating defect.

10. Two weeks following a live donor kidney transplant, a 47-year-old man develops copious wound drainage. The serum creatinine rises from 1.6 to 2.7 mg/dL. An ultrasound demonstrates a 10 cm peri-transplant fluid collection with mild hydronephrosis. The drain fluid gram stain shows no organisms and has a creatinine of 10 mg/dL. The etiology of the wound drainage is:

A. technically faulty ureteroneocystostomy.
B. unsecured lymphatics from the iliac vessel dissection.
C. distal ureteral necrosis.
D. unsecured donor kidney lymphatics.
E. perioperative edema at ureteroneocystostomy.

ANSWER=C

The clinical scenario describes a live donor kidney recipient who develops a ureteral fistula. Technically faulty ureteroneocystostomy will present immediately post-surgery. This delayed presentation, at one to three weeks after surgery, is typical of ureteral ischemia. In these cases, a compromised blood supply to the distal ureter results in distal ureteral necrosis with subsequent urine leakage. Initial management is endourological; however, open surgery may be required, especially to reduce the risks of prolonged healing times and potential of higher risks of infections. The elevated creatinine of the fluid suggests urine, not lymphatic fluid. Perioperative edema at the anastomosis would cause obstruction and hydronephrosis, not urinary leakage. A lymphocele would typically develop from donor lymphatics but is excluded in this case due to elevated creatinine.

11. A 35-year-old Cushingoid woman undergoes left adrenalectomy for a small adrenal adenoma. Postoperative cortisol levels remain high. Serum ACTH is low and an MRI scan of the brain is normal. The next step is:

A. aminoglutethimide.
B. right adrenalectomy.
C. ketoconazole.
D. ortho-para DDD.
E. metyrapone.

ANSWER=E

Excess circulating glucocorticoids may be due to adrenal adenoma or carcinoma, or to ectopic secretion of ACTH or corticotropin-releasing hormone (CRH). This patient has no evidence of Cushing disease or ACTH dependent disease. She most likely has a contralateral adrenal source and glucocorticoid suppression with metyrapone is the most appropriate next step. Agents include aminoglutethimide, which blocks the conversion of cholesterol to pregnenolone, but is not available, and metyrapone, which blocks the conversion of 11- desoxycortisol to cortisone and is the preferred choice. Ortho-para DDD (mitotane) can also be used to lower cortisol levels, but it is primarily used in the treatment of adrenocortical carcinoma given the cytotoxic effects on adrenal cells. Ketoconazole does lower cortisol levels but should not be used given the potential liver damage, and the FDA has issued a warning regarding oral ketoconazole and the risks of liver damage which has led to some cases of liver transplantation or even death. Patients given aminoglutethimide are prone to develop adrenocortical insufficiency because aldosterone production is also impaired. Metyrapone does not normally result in salt wasting because of increased production of desoxycorticosterone, a potent mineralocorticoid. A right adrenalectomy in a patient with a solitary adrenal gland would commit the patient to lifelong steroid replacement.

12. A 27-year-old woman has a long-standing history of flank pain and chronic fevers. Non-contrast CT scan is shown. The next step is antibiotics and:

A. DMSA scan.
B. nephrostomy tube placement and drainage.
C. ureteroscopy and laser lithotripsy.
D. PCNL.
E. nephrectomy.

ANSWER=A
The non-contrast CT scan appearance of a large reniform mass with a renal pelvis tightly surrounding a stone is typical of xanthogranulomatous pyelonephritis. A nuclear renal scan . 5is typically used to quantify the lack of the function of the affected kidney prior to considering nephrectomy. A diagnosis prior to surgery may be beneficial; in rare cases, antibiotics can eradicate long-term infection and improve renal function, or in some cases, the anatomy may be amenable to partial nephrectomy. If the kidney had acceptable function on DMSA scan, placement of a nephrostomy tube would be a reasonable next step. The stone burden is too large for ureteroscopy and laser lithotripsy to be successful. Given the appearance of xanthogranulomatous pyelonephritis, PCNL is not indicated. Although the patient will likely undergo a nephrectomy, it is important to establish differential function prior to undertaking this surgery.

13. A 27-year-old woman has 105 CFU Klebsiella per mL on screening urine culture during her sixth week of pregnancy. She is asymptomatic. The next step is:
A. repeat urine culture in one week.
B. antibiotic therapy if symptoms occur.
C. three days amoxicillin therapy.
D. three days amoxicillin therapy followed by low dose prophylaxis.
E. urine catheter specimen for culture and sensitivity.
ANSWER=C
Either symptomatic or asymptomatic bacteriuria discovered during pregnancy screening examinations increases a woman's risk of developing acute clinical pyelonephritis during the entire pregnancy. For this reason, a pregnant woman discovered to have bacteriuria must be treated when it is discovered. A three to seven-day course of therapy is recommended. Only if the woman has a history of recurrent UTI should prophylactic antibiotics be considered. Selection of the antibiotic agent must be made with care to avoid agents with possible teratogenic effects. The aminopenicillins and cephalosporins are considered safe throughout pregnancy. Unless there is clear evidence of a contaminated specimen, a catheterized urine specimen is not required.

14. Eighteen months following a low anterior resection for rectal cancer, a 45-year-old woman has persistent voiding dysfunction and urinary incontinence. The most likely pattern on videourodynamics will be:
A. normal compliance, bladder neck incompetence, and fixed external sphincter tone.
B. decreased compliance, bladder neck incompetence, and fixed external
sphincter tone.
C. decreased compliance, competent bladder neck, and normal external sphincter tone.
D. normal compliance, competent bladder neck, and normal external sphincter tone.
E. decreased compliance, bladder neck incompetence, and normal external sphincter tone.
ANSWER=B
The inferior hypogastric plexus (pelvic plexus) which innervates the viscera of the pelvic cavity is a paired structure located on the side of the rectum in males and the sides of the rectum and vagina in females. Lower urinary tract dysfunction after pelvic plexus injury occurs most commonly after abdominoperineal resection (APR) and radical hysterectomy. The most common pattern for patients with prolonged post-radical pelvic surgery voiding dysfunction is the failure of bladder contraction (areflexia) and a fixed striated sphincteric tone, which continually increases outlet resistance. This generally results in an areflexic poorly compliant bladder; thus, urodynamics will usually manifest reduced compliance, an incompetent bladder neck, and fixed external sphincter tone.

15. A four-year-old boy, previously treated for PUV, has nocturnal enuresis and some daytime incontinence. A 24-hour urine collection shows a volume of 1800 mL. The best treatment is:
A. DDAVP.
B. salt restriction.
C. postvoid catheterization.
D. decrease oral fluid intake.
E. increase frequency of voiding.
ANSWER=E
Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction. Salt restriction as well will not usually result in a reduction in urine volume. These patients, by definition, will not respond to DDAVP. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this boy to get up once or twice per night to void. The character of this bladder will have a major impacton therapy.

16. A 26-year-old schizophrenic man is evaluated two hours after self-amputation of his phallus at its base with a knife. The amputated organ has been preserved at room temperature. The next step is suprapubic cystotomy, debridement, and:
A. stump closure with distal spatulation of urethra.
B. stump closure with perineal urethrostomy.
C. leave stump open to heal by secondary intention.
D. creation of neophallus with abdominal pedicle flap.
E. re-plantation of phallus.
ANSWER=E
Replantation of the amputated phallus is usually successful even after two hours ischemia without ice. Generally, replantation is successful up to six hours of warm, ischemia time or 16 hours of cold ischemia time. Care must be taken as to the handling of the amputated segment as frost injury may occur if improperly stored in ice. The edges should be debrided and the corpora and urethra reapproximated. Microsurgical re-anastomosis of the cavernosal arteries, dorsal vein, and cavernous nerves should be performed as expertise dictates. Complications such as skin loss, urethral stricture, and sensory abnormalities are much less common with microsurgical neurovascular re-anastomosis. Attempts to revise or close the stump or attempted neophallus construction are not indicated at this early phase after injury when replantation is

possible. Psychiatric evaluation is necessary for the majority of these patients.

17. Deletions or mutations on chromosome 3 are most common in which histologic subtype of RCC:
A. clear cell.
B. chromophobe.
C. collecting duct.
D. medullary cell.
E. papillary.
ANSWER=A
Genetic alterations on chromosome 3 are common in the clear cell variant of RCC but are uncommonly found in the other histologic variants, suggesting distinct pathways to tumorigenesis. The VHL tumor suppressor gene located at chromosomal locus 3p25 ismutated in approximately 50% of sporadic clear cell type RCC. The mutations of this gene result in decreased expression of hypoxia inducible factor 1 (HIF1) and increased expression of vascular endothelial growth factor 1 (VEGF1), thereby resulting in increased angiogenesis.

18. A 58-year-old woman underwent cutaneous continent diversion three months ago for bladder cancer. She has intermittent fever and mild discomfort over the reservoir. Her serum creatinine is 1.5 mg/dL, and an abdominal ultrasound shows mild bilateral hydronephrosis and a distended reservoir. A urine culture is positive for a pansensitive
E. coli. The next step is treatment of the infection and:
A. pouch endoscopy.
B. regular pouch irrigation.
C. prophylactic antibiotic administration.
D. increase size of the catheter used for pouch drainage.
E. obtain pouchogram.
ANSWER=B
It is not uncommon to develop pouchitis after construction of a continent urinary reservoir. This is especially true in the early postoperative period when mucous accumulation can be high. A simple program of mechanical irrigation can decrease the incidence of infections, though asymptomatic colonization may not decrease. Using a larger catheter may help urine drainage but usually does not drain all the mucous. Prophylactic antibiotics or urine acidification are useful in patients who do not respond to simple measures and remain persistently infected. A pouchogram is not the first step in evaluation and treatment at this time.

19. An eight-year-old boy is an unrestrained passenger in an MVC. He complains of left abdominal pain and has left upper quadrant tenderness. He is hemodynamically stable and has microscopic hematuria. CT urogram shows a normal right kidney. The left kidney is markedly hydronephrotic and there is perinephric contrast extravasation. The left ureter is not visualized. The next step is:
A. observation and antibiotics.
B. renal scan.
C. retrograde pyelogram.
D. percutaneous nephrostomy.
E. renal exploration.
ANSWER=C
This boy likely has an injury to the collecting system in a chronically obstructed kidney. The most likely sites of extravasation are the dilated pelvis or fornix; however, a UPJ disruption is also possible and needs to be excluded. The radiographic sign of importance is the absence of distal ureteral filling during the CT scan. Renal salvage is enhanced by early diagnosis which may be best confirmed by retrograde pyelography in preparation for a definitive repair. Prior to any type of open exploration, the status of the ureter needs to be defined. At the time of the retrograde pyelogram, a stent may be left in the ureter distal to the disruption to facilitate surgical dissection.

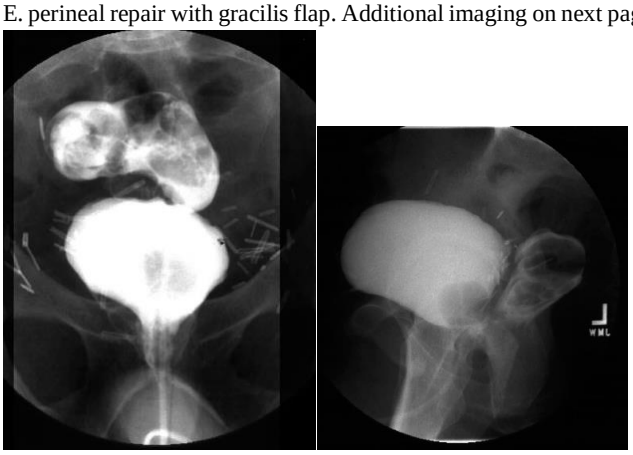
20. A 72-year-old man on steroids for rheumatoid arthritis has a solitary, 2.0 cm, highgrade urothelial carcinoma on the posterior bladder wall with focal invasion of the lamina propria. The next step is:
A. intravesical BCG.
B. intravesical BCG with interferon.
C. intravesical mitomycin C.
D. partial cystectomy.
E. radical cystectomy.
ANSWER=C
Overall, about 70% of patients with unifocal stage T1a (focally or minimally invasive) can be successfully managed with intravesical therapy, so at least one course of intravesical therapy should be strongly considered. Immunomodulators such as BCG or interferon are dependent on an intact immune system, and tend to be less effective in immunosuppressed patients. A course of mitomycin C followed by close surveillance would be the best option, followed by surgery if refractory disease was encountered. Although partial or radical 8

21. A six-month-old boy has moderate hydronephrosis in a solitary kidney diagnosed antenatally. A VCUG is normal. MAG-3 diuretic renal scan shows a washout time of 25 minutes. His urinalysis is normal and his serum creatinine is 0.7 mg/dL. The next step is:
A. MAG-3 diuretic renal scan in three months.
B. ultrasound in three months.
C. antegrade pressure perfusion study (Whitaker test).
D. percutaneous endopyelotomy.
E. pyeloplasty.
ANSWER=E
The patient has a solitary kidney with a prolonged washout and elevated serum creatinine. Pyeloplasty is the correct response. All the other conservative options would prolong his obstruction and a Whitaker test has potential complications, especially in a solitary kidney. Endopyelotomy has not proven equivalent in terms of success rates nor as safe as pyeloplasty in this age group.

22. A 68-year-old man with a several month history of lower abdominal pain and constipation develops urinary frequency and dysuria. Urine culture demonstrates > 105 CFU/mL of E. coli, Pseudomonas, and enterococcus. The most likely etiology is:
A. perirectal abscess.
B. diverticulitis.
C. ulcerative colitis.
D. Crohn's disease.
E. colon cancer.
ANSWER=B
Mixed flora UTI is most often associated with a vesicoenteric fistula to the colon. In men over age 50, the most common cause is diverticular disease with a vesicocolic fistula. Crohn's disease, while a common cause, usually occurs in patients < 40 years of age. Infections, stones, and prostatic abscesses rarely produce mixed flora on urine culture. Ulcerative colitis and colon cancer are less common causes of UTI in this population.

23. A 64-year-old man has recurrent febrile UTIs and urosepsis following transurethral incision of a post-radical prostatectomy bladder neck contracture. Cystoscopy reveals a large posterior defect at the bladder neck. A cystogram is shown. The next step is antibiotics and:
A. rectal tube.
B. diverting colostomy.
C. abdominal repair with omental pedicle.

D. posterior transanal repair.
E. perineal repair with gracilis flap. Additional imaging on next page.



ANSWER=B
The cystogram demonstrates a large colovesical fistula which resulted from thetransurethral incision of the bladder neck contracture. This large defect will likely not heal with observation alone and definitive repair will be required; however, before definitive repair can be performed, a period of fecal diversion is required in order to allow for the infection to resolve and to give the primary repair the best chance of healing. Following the fecal diversion, a variety of approaches including anterior, posterior and perineal, could be performed with a high rate of success.

24. A four-year-old boy develops precocious puberty (phallus 8 cm stretched length, pubic hair, and acne). The testes cannot be palpated because there are bilateral hydroceles. LH and FSH are low, consistent with the age, but the serum testosterone is elevated (300 ng/dL). The bone age is ten years. The study most likely to be helpful in establishing the diagnosis is:
A. skull films.
B. CT scan of skull.
C. CT scan of abdomen.
D. abdominal ultrasound.
E. scrotal ultrasound.
ANSWER=E
Precocious puberty may be idiopathic, pituitary, adrenal, or testicular in origin. Pituitary lesions will produce elevated gonadotropins (FSH, LH). Because the gonadotropins are normal, a pituitary lesion is excluded in this patient. The most common adrenal cause is congenital adrenal hyperplasia, which would probably have been apparent at an earlier age, and probably would not be detected by either ultrasonography or CT scanning. Leydig cell tumors of the testis are hormonally active and are associated with precocious puberty in children. Leydig cell tumors are responsible for about 10% of all cases of precocious puberty. Other causes of precocious puberty include pituitary lesions, Leydig cell hyperplasia, large cell Sertoli cell tumors, and hyperplastic nodules in patients with congenital adrenal hyperplasia. One can exclude pituitary lesions by demonstrating an increased testosterone level with age-appropriate LH and FSH levels. Diagnostic work-up should include serum tumor markers and testicular ultrasound examination. The ultrasound appearance of these tumors is variable and is indistinguishable from germ cell tumor. In the presence of gynecomastia, infertility, depressed libido, or precocious puberty, LH, FSH, testosterone, estrogen, and estradiol should also be drawn (these should be measured after orchiectomy if the diagnosis is not suspected preoperatively). Leydig cell tumors of the testis may produce precocious puberty and may not be palpable. Scrotalultrasound is a simple screening procedure and may detect a small Leydig (interstitial cell) tumor.

25. A 27-year-old man evaluated for infertility has a normal sperm count and motility but sperm morphology reveals only round-headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate-sized left varicocele. His wife is 25-years-old and has a normal evaluation. The next step is:
A. varicocele repair.
B. intrauterine insemination.
C. re-evaluation in three months.
D. in vitro fertilization.
E. ICSI.
ANSWER=E
Normal sperm have oval shaped heads. Globozoospermia is a condition in which the sperm heads are missing their acrosome, and these sperm, therefore, have a characteristic round or spherically shaped head. Given the absence of the acrosome, these sperm are unable to penetrate the oocyte and are unable to achieve fertilization through conventional means; however, these sperm are able to fertilize the egg through in vitro fertilization with intracytoplasmic sperm injection, which is the treatment of choice for these patients. Varicocele repair does not impact globozoospermia, which has been shown to be associated with mutations in the genes SPATA16, PICK1, and DPY19L2. Observation for three months will not change his condition and intrauterine insemination and in vitro fertilization will be unsuccessful because the sperm cannot fertilize an egg without a normal acrosome. The only method that will facilitate the couple achieving a pregnancy using the patient's sperm is in vitro fertilization with intracytoplasmic sperm injection (IVF/ICSI). Standard IVF/ICSI is now sometimes combined with assisted oocyte activation in order to enhance fertilization success rates.

26. An eight-year-old boy has persistent urinary incontinence following newborn resection of PUV. This is most likely due to:
A. detrusor overactivity.
B. vesicoureteral reflux.
C. poorly compliant bladder.
D. incompetent bladder neck.
E. damaged external urethral sphincter.
ANSWER=A
Urinary incontinence following PUV resection/ablation is common. Although in some instances, this is secondary to surgical injury of the urethra or bladder neck, the most common finding is bladder dysfunction. Three patterns of bladder dysfunction have been identified in boys with valves: myogenic failure, detrusor overactivity, and decreased compliance with a small bladder. In prepubertal boys with persistent incontinence, detrusor overactivity is the dominant pattern. Myogenic failure typically presents post-pubertally.

27. Normal micturition is initiated by:
A. detrusor pressure increase.
B. vesical neck opening.
C. striated sphincter relaxation.
D. C-fiber afferents.
E. activation of Onuf's nucleus.
ANSWER=C
The micturition reflex originates in the pons and is under voluntary control. Normal voiding is initiated by a sudden and complete relaxation of the striated sphincteric muscles, followed by a rise in detrusor pressure and the opening of the vesical neck and urethra. Cfiber afferents are often upregulated in a pathologic bladder and are not involved in the normal micturition process. Onuf's nucleus is involved with the micturition process but does not initiate it.

28. One day after an uncomplicated PCNL, arterial bleeding occurs from the nephrostomy tract following removal of the nephrostomy tube. Replacement of the nephrostomy tube decreases the bleeding. After nephrostomy tube placement, the next step is:

A. selective angioembolization.
B. nephrostomy tube for six weeks.
C. CT angiography.
D. tamponade balloon catheter for 48 hours.
E. open exploration.
ANSWER=A
Delayed bleeding after percutaneous nephrostolithotomy is most commonly due to an arteriovenous fistula or pseudoaneurysm. The bleeding may occur intermittently either with or without a nephrostomy tube in place and can often be readily controlled with thereplacement of the tube; however, definitive management of an arterial bleed is still required. Selective renal arteriogram with transcatheter embolization is the treatment of choice. Neither prolonged nephrostomy dwell time for six weeks nor tamponade balloon catheter will correct the underlying vascular malformation. Although CT angiography may identify a vascular lesion, it is not therapeutic and exposes the patient to an additional contrast load. Open exploration is an invasive option that carries with it an increased risk for renal loss.

29. Two years ago, a 62-year-old man underwent a radical cystectomy and ileal conduit for urothelial carcinoma. Follow-up renal ultrasound shows right hydroureteronephrosis. His serum creatinine has increased to 1.2 mg/dL and his cytology is negative. Loopogram is shown. The next step is:
A. observation.
B. MAG-3 diuretic renogram.
C. CT urogram.
D. looposcopy and right retrograde pyelogram.
E. right percutaneous nephrostomy with antegrade pyelogram.

ANSWER=C
Uretero-intestinal anastomotic strictures can be benign or malignant. The loopogram shows reflux on the left with no reflux on the right. Because the patient had a refluxing anastomosis, this suggests that the hydronephrosis on the right is from ureteral obstruction rather than from reflux, a long conduit, or stomal stenosis. Observation is not a good option, as it is important to determine the nature of the obstruction (benign or malignant) and to treat the obstruction as there remains the potential to preserve residual renal function on the right. The fact that the urine cytology is negative does not rule-out a malignant obstruction. The next step is CT urogram to evaluate for an intrinsic or extrinsic mass at the site of obstruction. After the CT scan, percutaneous nephrostomy tube with antegrade evaluation and treatment may be appropriate. After the CT scan, a renogram may be helpful, less to evaluate the degree of obstruction, but more to assess differential renal function. Looposcopy with retrograde would be difficult in a patient with ureteral obstruction unless there is a wire or stent already in place.

30. An 18-year-old man injured in an MVC has blood at the external urethral meatus. An indication for urethral catheter drainage of the bladder, without further surgical exploration, is:
A. retrograde urethrogram demonstrating disruption of the penile urethra.
B. retrograde urethrogram demonstrating partial tear of the posterior urethra.
C. extraperitoneal bladder perforation in association with pelvic fracture requiring surgical repair.
D. extraperitoneal bladder perforation with bone fragment penetrating the bladder wall.
E. intraperitoneal bladder perforation with only microscopic hematuria.
ANSWER=B
Direct injury to the penile urethra is usually best managed with a primary surgical repair. In contrast, partial injuries to the posterior urethra will usually heal well over a urethral catheter if one can be placed a traumatically. This may be accomplished safely by placement over a cystoscopically inserted wire. While extraperitoneal bladder injuries can usually be managed by urethral catheter drainage of the bladder, indications for a primary surgical closure of the bladder and placement of a suprapubic cystostomy include: co-existing open pelvic fracture, patients undergoing laparotomy, or open surgical repair of the pelvic fracture, rectal perforation, and bone fragment projecting into the bladder.

31. Development of plasmid-mediated drug resistant bacteria is least likely to occur following administration of:
A. cephalexin.
B. ciprofloxacin.
C. tetracycline.
D. sulfamethoxazole.
E. ampicillin.
ANSWER=B
Plasmid-mediated (extrachromosomal-mediated) drug resistance rarely develops following administration of ciprofloxacin because this drug inhibits bacterial DNA gyrase which is required for bacterial replication and plasmid exchange. All of the other agents have been associated with plasmid-mediated drug resistance.

32. A 30-year-old woman wishes to become pregnant following renal transplantation. Her serum creatinine is 1.2 mg/dL. She should be counseled that pregnancy will most likely be associated with:
A. fetal genetic abnormality.
B. preterm delivery.
C. allograft rejection.
D. preeclampsia.
E. intrauterine growth retardation.
ANSWER=B
With increased long-term success of renal transplantation, many women of childbearing age wish to become pregnant. Successful renal transplantation usually restores fertility in premenopausal women. A large study of pregnancies following renal transplantation has confirmed the safety of pregnancy in such patients: 94% of pregnancies that progressed beyond the first trimester were successfully completed. The most common complications were preterm delivery (50%), followed by preeclampsia (30%), intrauterine growth retardation (20%), and rejection (10%). There is no increased risk of fetal genetic abnormalities. Renal transplant function may be adversely affected in pregnancy if the serum creatinine is > 1.5 mg/dL.

33. A 65-year-old woman has intermittent dysuria and urgency. There is no association with sexual activity and there are no urinary symptoms between episodes. Voided mid-stream urinalyses while symptomatic reveal occasional RBCs, 1 to 3 WBCs, and 1 to 3 squamous epithelial cells per hpf. Initial management should be:
A. urine culture during symptomatic episodes.

B. prophylactic antibiotics.
C. cystoscopy.
D. home self-start antibiotic therapy.
E. assess PVR.
ANSWER=A
There is no documentation of infection, and suppressive antibiotics should not be considered until infections are documented. Further evaluation of the bladder and upper tract are not needed yet, given the lack of symptoms between episodes and the absence of hematuria, although additional assessment may be appropriate later.

34. A 20-year-old man undergoes a distal shunt (Al-Ghorab) for veno-occlusive priapism. Four hours later, he has a 70% rigid erection. The next step is:
A. proximal cavernosal-spongiosal shunt.
B. intracorporal phenylephrine administration.
C. corporal blood gas analysis.
D. pudendal arteriography.
E. cavernosal-saphenous vein shunt.
ANSWER=C
The purpose of a shunt procedure for venocclusive priapism is to oxygenate the penis. Often, residual corporal, smooth muscle paralysis, and edema will leave the patient's penis tumesced and sometimes rigid. Following an Al-Ghorab shunt, grasping the penis at its base and squeezing will reduce arterial inflow and should result in detumescence, if the shunt is open. Confirmation can be made by drawing a blood gas and proving arterial oxygen levels. This should be done before returning to the operating room for a second shunt procedure. An alternative approach would be to perform a penile duplex ultrasound to demonstrate any arterial inflow. Pudendal arteriography and intracorporal phenylephrine would not be considered until the diagnosis has been confirmed with a corporal blood gas analysis.

35. The single most important factor in choosing whether to repair a vesicovaginal fistula using a transabdominal or transvaginal approach is:
A. location of the fistula in the bladder.
B. size of the fistula.
C. need for tissue interposition.
D. experience of the surgeon.
E. prior pelvic radiation.
ANSWER=D
Both the transabdominal and transvaginal approaches have merits in repairing vesicovaginal fistulae and can produce excellent outcomes. While size, location, need for adjunctive procedures, and prior radiation should all be considered when choosing an approach, the single most important factor is the experience of the operating surgeon.

36. A healthy newborn boy has bilateral grade 4 VUR. This is most commonly associated with:
A. low outlet resistance.
B. uninhibited detrusor contractions, coordinated voiding.
C. poor bladder compliance.
D. high pressure voiding with high residual.
E. lack of detrusor contractility.
ANSWER=D
Reflux in newborn boys is commonly high grade and associated with uninhibited detrusorcontractions during filling, high pressure voiding due to elevated outlet resistance, detrusor-sphincter dyssynergy, and high postvoid residuals. Uninhibited, detrusor contractions associated with coordinated voiding is normal in infants and not associated with high-grade VUR. Compliance and contractility are generally within the range of normal for these boys. The best treatment for infant boys with high-grade VUR is prophylactic antibiotics and observation. Most of these infants will decrease their outlet resistance and resolve their VUR with neuro-urologic maturation during the first year of life. This specific subgroup of children with high-grade VUR (newborn males) differs because of the high rate of spontaneous resolution.

37. A 45-year-old woman with lower extremity weakness has new onset frequency, urgency, and urgency urinary incontinence despite therapy with oxybutynin. Urinalysis is negative. PVR is 90 mL. CMG reveals phasic detrusor overactivity throughout filling. During volitional voiding, there is simultaneous contraction of the external sphincter. The next step is:
A. referral for neurological evaluation.
B. cystoscopy and cytology.
C. sacral neuromodulation.
D. intradetrusor onabotulinumtoxinA injections.
E. intradetrusor and intrasphincteric onabotulinumtoxinA injections.
ANSWER=A
This patient has detrusor external sphincter dyssynergia (DESD) based on the urodynamic evaluation. This may imply the presence of a suprasacral spinal cord lesion. Increased external sphincter activity during voiding can also be seen in dysfunctional voiding, a learned behavior not caused by a neurological lesion. Multiple sclerosis (MS) needs to be strongly considered given this patient's neurologic symptoms and urodynamic findings. Approximately 5-10% of patients with MS present initially with urologic complaints. Cystoscopy is not indicated, and bladder cancer is not likely in this age demographic and with a negative urinalysis. This patient should be evaluated for a possible neurological process due to the finding of sphincter activity during voiding and her associated neurologic symptoms. OnabotulinumtoxinA injections or neuromodulation should not be utilized until a definitive diagnosis has been made. In addition, neuromodulation would not be done in a patient with possible MS as they may require serial MRI scans in the future.

38. A 35-year-old alcoholic man with renal insufficiency undergoes a left radicalorchiectomy for a NSGCT. His preoperative AFP was 100 IU/mL and beta-hCG was 85 mlU/mL. Two weeks later, AFP is 2 IU/mL and beta-hCG is 15 mlU/mL. His metastatic evaluation is otherwise negative. The most likely explanation for the marker elevation is:
A. hepatic dysfunction.
B. renal insufficiency.
C. hypogonadism.
D. normal marker decline.
E. residual yolk sac elements.
ANSWER=C
The rate of tumor marker decline relative to expected half-life after treatment has been proposed as a prognostic index. The half-life of AFP is five days. Beta-hCG is one to two days. Patients whose values decline according to half-life after treatment appear more likely to be disease free than those whose marker decline is slower or whose markers never return to normal levels; however, there are non-malignant causes of persistently elevated levels of both AFP and beta-hCG. Liver damage, secondary to drugs, hepatitis, and alcohol abuse may lead to an elevated AFP level. Beta-hCG may remain persistently elevated due to non-malignant causes such as hypogonadism and marijuana use. In this patient, the most likely etiology is hypogonadism induced by alcoholism. This results in altered testis-pituitary feedback and secondary elevation of LH which cross-reacts with beta-hCG measurement, leading to false elevation of beta-hCG. Human chorionic gonadotropin is not produced by yolk sac elements, but rather by syncytiotrophoblastic cells. Clearly, every effort should be made to exclude all false positive causes of tumor marker elevation before subjecting patients to unnecessary treatment.

39. A 20-year-old man has cerebral palsy with significant cognitive dysfunction. He develops urosepsis associated with bilateral staghorn calculi and left emphysematous pyelonephritis. His mother, the legal guardian, states that his quality of life is very poor and refuses interventions. The next step is:

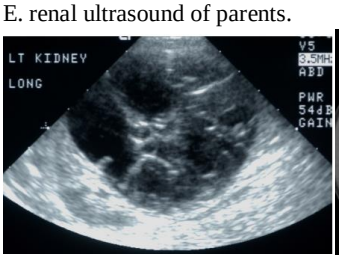
A. honor the mother's request.
B. antibiotics.
C. antibiotics and left nephrectomy.
D. antibiotics, placement of right ureteral stent, and left nephrectomy.
E. antibiotics and seek emergent legal consultation for transfer of guardianship.

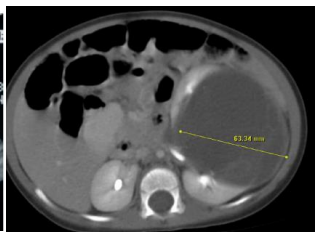
ANSWER=E

The federally mandated "Baby Doe" rule states that life-sustaining treatment is not mandatory when "medical or surgical treatment would be virtually futile in terms of survival, and the forced treatment of such a patient would be considered inhumane". The case described above does not fit under this rule. In this situation, physician judgment may be hampered because of the quality of life concerns. By law, medical and surgical interventions are ethically mandatory when the only supposed contraindication is limited intelligence or developmental disability, such as cerebral palsy or Down's syndrome. In this case, in the absence of a terminal disease, treatment is mandatory. Social service consultation should be obtained, and I.V. antibiotics should be initiated to help stabilize the patient. Emergent transfer of legal guardianship should be performed followed by surgical intervention.

40. A three-year-old girl has a febrile UTI. Ultrasound and CT scan are shown. The right kidney is normal. The next step is:

A. DMSA scan.
B. nephrectomy.
C. antibiotics and repeat ultrasound in three months.
D. percutaneous aspiration.
E. renal ultrasound of parents.





ANSWER=B

The imaging studies show a large complex cystic lesion that is not the result of an infectious process; therefore, DMSA scan, antibiotic therapy, and re-imaging are not indicated. The lesion is not typical for inherited cystic disease and parental evaluation is of no value. The differential diagnosis is either a cystic Wilms' tumor vs. a multilocular cystic nephroma. Diagnosis and treatment should be made based on the pathology following a nephrectomy. Percutaneous biopsy is not appropriate in this setting.

41. Cystoscopy in a man often causes an increase in:

A. free PSA.
B. complexed PSA.
C. complexed/total PSA ratio.
D. PSA velocity.
E. prostate volume.

ANSWER=A

Complexed PSA represents the fraction of total PSA that is circulating bound to other serum proteins, including antichymotrypsin and alpha-1-macroglobulin. Prostate manipulation including biopsy, cystoscopy, catheterization, and vigorous massage generally result in a transient increase in serum total PSA. Most of the rise in total PSA is contributed by the free (non-bound) component. In general, complexed PSA is the most stable component and relatively little rise occurs following prostate instrumentation. Complexed to total PSA ratio would decrease upon disproportionate free PSA increase. Due to the transient nature of PSA rise with prostate manipulation, PSA velocity is generally not affected.

42. A 28-year-old woman with newly diagnosed hypertension has a 1.8 cm partially calcified right renal artery aneurysm. Appropriate long-term management is:

A. sodium restriction.
B. weight loss.
C. thiazide diuretic.
D. selective embolization.
E. surgical repair.

ANSWER=E

Renal artery aneurysms are often associated with hypertension. Other symptoms may include flank pain and hematuria. When less than 1.5 cm in size, conservative management such as sodium restriction, weight loss, and antihypertensives (thiazide diuretics) are indicated. Although rupture of renal artery aneurysms is uncommon, the results can be catastrophic when it occurs during pregnancy. For this reason, it is recommended that renal artery aneurysms in women of childbearing age be surgically repaired. Fully calcified renal artery aneurysms tend to be stable and have a negligible risk for rupture and would not require surgical intervention. Selective embolization will lead to loss of significant renal parenchyma.

43. Persistent early morning calcium oxalate crystalluria in a known calcium oxalate stone former correlates with urinary:

A. pH.
B. volume.
C. sodium.
D. citrate.
E. stone recurrence.

ANSWER=E

Although the finding of crystalluria does not distinguish stone formers from non-stone formers, and crystalluria can be found in 15-20% of normal individuals, a long-term prospective study of recurrent stone formers determined that persistent early morning crystalluria was highly predictive of recurrent stone formation. Daily follow-up urine volume and calcium and oxalate concentration were also independent risk factors for stone recurrence; however, crystalluria does not correlate with specific urine parameters.

44. During performance of a TRUS of the prostate, decreasing the transducer frequency from 7.5 to 4.5 MHz would:

A. decrease resolution and increase depth of penetration.
B. increase resolution and decrease depth of penetration.
C. decrease resolution and decrease depth of penetration.
D. increase resolution and increase depth of penetration.
E. have no effect on resolution and depth of penetration.

ANSWER=A

A basic understanding of ultrasound physics is important for optimal diagnostic imaging using this modality. Ultrasound uses high-frequency sound waves to image anatomic structures. The sound waves, as a result of their interaction with tissue, are either reflected, refracted, or absorbed. Air reflects sound waves completely; bone absorbs them completely. In diagnostic imaging of the GU system, frequencies between 1 and 10 MHz are typically used. Sound waves have a wave-length between frequencies of 1.5 to .15 mm which sets a fundamental limit on the potential spatial resolution of the image. Many current ultrasound probes have variable frequency transducers allowing the operator to adjust the frequency in order to optimize imaging characteristics. Increasing the frequency (MHz) increases spatial resolution; however, as the frequency is increased, the depth of penetration decreases as a result of attenuation of ultrasound.

Optimum imaging is thus obtained by choosing the highest frequency that will permit adequate penetration to identify the region of interest.

45. In a morbidly obese man with erectile dysfunction, the serum androgen profile is:
A. total testosterone: ↓, estradiol: ↑, sex hormone-binding globulin:↓.
B. total testosterone: ↓, estradiol: ↓, sex hormone-binding globulin:↓.
C. total testosterone: ↓, estradiol: ↑, sex hormone-binding globulin:↑.
D. total testosterone:↔, estradiol:↓, sex hormone-binding globulin:↑
E. total testosterone: ↑, estradiol: ↓, sex hormone-binding globulin:↑
ANSWER=A
The majority of testosterone circulates bound to sex hormone-binding globulin (SHBG), with albumin and cortisol binding globulin (CBG) playing lesser roles. Only 1-3% of total testosterone circulates unbound (free). SHBG production in the liver and Sertoli cells are altered by obesity, liver disease, and nephrotic syndrome. Obese males have reduced SHBG, and lower total testosterone, while the free testosterone levels are unchanged. The excess aromatase activity in visceral fat in obese men translates into greater testosterone breakdown to estradiol, which further lowers the total testosterone level.

46. A 54-year-old man dies the morning following a radical prostatectomy. A decision about an autopsy is determined by:
A. the family.
B. hospital policy.
C. the coroner/medical examiner.
D. the patient's advance directives.
E. the attending physician.
ANSWER=C
Most legal jurisdictions and hospital regulations require that all deaths be investigated that are either postoperative or related to a medical procedure. An autopsy is not performed as a part of every death investigation. In most cases, the determination of the need to perform an autopsy is a discretionary responsibility of the coroner/medical examiner. If the coroner/medical examiner is unable to determine the cause and manner of death, the law may require an autopsy to establish the cause and manner of death. In this case, the family's permission is not needed. Additionally, the patient may not elect for this in his advance directives, nor can the attending physician.

47. A neonatal boy has a solid 4 cm renal mass with no other abnormalities. The contralateral kidney is normal. The next step is:
A. biopsy of mass.
B. partial nephrectomy.
C. radical nephrectomy.
D. radical nephrectomy and chemotherapy.
E. radical nephrectomy, chemotherapy, and XRT.
ANSWER=C
Congenital mesoblastic nephroma is the most common solid renal tumor in infants at amean age of 3.5 months. There is excellent outcome after radical nephrectomy alone. Occasionally, this extends into the hilum or perirenal soft tissue, so complete excision is important to prevent local recurrence; therefore, biopsy and partial nephrectomy are not advised. Neither chemotherapy nor XRT is routinely recommended.

48. A 50-year-old man undergoes a radical orchiectomy and is reported to have a pure seminoma. Serum beta-hCG is 342 mlU/mL and AFP is 123 IU/mL prior to orchiectomy. CT scan reveals a 7 cm para-aortic mass. After four cycles of chemotherapy, the paraaortic mass is 1.8 cm and serum markers are normal. The next step is:
A. observation.
B. PET scan.
C. additional chemotherapy.
D. retroperitoneal XRT.
E. RPLND.
ANSWER=E
The production of AFP is limited to cells of the cytotrophoblast. In cases of testicular germ cell tumor, the presence of an elevated serum AFP confirms the tumor to be at least partially of nonseminomatous origin due to the presence of yolk sac elements. In this case, despite the fact that the histologic evaluation of the primary tumor demonstrates pure seminoma, the cancer must be treated as a NSGCT. In patients with residual mass following chemotherapy for metastatic NSGCT, an RPLND is indicated unless the CT scan normalizes with all lymph nodes < 1 cm. Although helpful for the evaluation of a post-chemotherapy residual mass in pure seminoma, PET scan does not accurately characterize the nature of residual masses following chemotherapy in NSGCT as they may represent residual cancer, teratoma, or necrosis/fibrosis only. Given the serum marker normalization, additional chemotherapy is not necessary. XRT is not indicated in a patient with metastatic NSGCT.

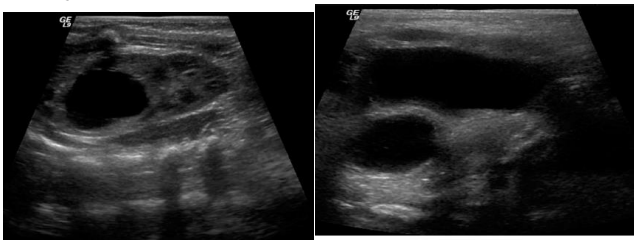
49. An eight-year-old girl has urinary urgency, urge incontinence, and constant leakage of urine. She is started on timed voiding and has improvement with the urge incontinence but still has constant urinary leakage. Renal and bladder ultrasound are normal. The next step is:
A. MRI urogram.
B. MRI scan of the spine.
C. VCUG.
D. videourodynamics.
E. MAG-3 renal scan.
ANSWER=A
The clinical history strongly suggests that this girl has an ectopic ureter even though the ultrasound does not show evidence of this. The absence of an abnormality on ultrasound does not rule-out an ectopic ureter. Occasionally, the renal parenchyma from the upper pole of the kidney that is associated with the ectopic ureter is difficult to visualize on ultrasound and may be identified only by alternative imaging studies. In cases in which an ectopic ureter is strongly suspected because of incontinence, yet no definitive evidence of the upper pole renal segment is found on ultrasound, MRI scan will likely demonstrate the small, poorly functioning upper pole segment and ureter inserting beyond the bladder neck. None of the other options will adequately visualize an ectopic ureter.

50. A 38-year-old woman with a T6 spinal cord injury is treated with an indwelling catheter and oxybutynin for 18 months. She has severe urinary incontinence around the catheter and a patulous urethra at cystoscopy. Videourodynamics performed with a urethral catheter balloon occluding the urethra shows detrusor overactivity, a bladder capacity of 75 mL, and bilateral grade 4 VUR. The next steps are:
A. antimuscarinics and suprapubic tube placement.
B. antimuscarinics, urethral sling placement, and CIC.
C. antimuscarinics, bulking agent injection, and CIC.
D. urethral sling placement, augmentation cystoplasty, and CIC.
E. ileovesicostomy.
ANSWER=D
A T6 spinal cord injury would be associated with detrusor overactivity and detrusor sphincter dyssynergia, in most instances. A suprapubic tube would not help with the stress incontinence that has developed due to sphincteric damage from the long-standing urethral catheter. The patient already has severe detrusor overactivity and reflux, despite antimuscarinic use; therefore, a sling alone will still likely be associated with detrusor overactivity-induced leakage and may intensify the risk of upper tract damage.

Ileovesicostomy would likely be associated with ongoing urethral leakage, again due to the damaged sphincter. Bulking agent injection may help improve outlet resistance, but performing CIC repeatedly through the injected area will likely render any beneficial effect meaningless as the bulking agent is molded due to chronic catheterization. An augment, coupled with a sling, will take care of the detrusor overactivity, and the damaged sphincteric unit. The patient would need to perform CIC.

51. A two-month-old girl has a prenatal history of right hydronephrosis. Neonatal ultrasound images of the right kidney and bladder are shown. The most likely embryologic event to explain this anomaly is:

A. an adynamic distal ureteral segment.
B. a persistence of Chwalla membrane.
C. a cephalad origin of a ureteral bud off the mesonephric duct.
D. a muscular weakness of the trigone of the bladder.
E. early bifurcation of the ureteral bud.



ANSWER=C

The images demonstrate a duplicated collecting system of the right side with significant hydronephrosis of the upper pole. The bladder image demonstrates a large cystic structure lateral and posterior to the bladder indicative of a largely dilated ureter. The presence of distinct bladder wall between the lumen of the ureter and bladder distinguishes this as an ectopic ureter rather than a ureterocele. This scenario is most commonly explained by a complete duplication of the right system with an ectopic upper pole ureter. The embryology that explains the pathology of an ectopic ureter is a cephalad origin of the ureteral bud on the mesonephric duct. With an abnormally long common excretory duct, the ureter never becomes incorporated into the bladder, and, therefore, remains ectopic. In the female, the most common locations of an ectopic ureter are the bladder neck, urethra, or Gartner's duct which lies between the urethra and the anterior vaginal wall. An adynamic distal segment would result in a ureterovesical junction obstruction. Persistence of Chwalla membrane would result in a ureterocele. A muscular weakness of the trigone of the bladder would create a diverticulum. Early bifurcation would create a partially duplicated collecting system.

52. A man with erectile dysfunction, diabetes, and an associated autonomic neuropathy complains of debilitating diplopia with sildenafil despite obtaining an excellent erectile response. He should be advised to discontinue sildenafil and:

A. seek an ophthalmologic consultation.
B. use intracavernosal injections.
C. use an intra-urethral suppository.
D. use vardenafil.
E. use tadalafil.

ANSWER=E

Diplopia, blurred vision, and loss of color vision (chromatopsia) are related to cross activity that some PDE5 inhibitors have for PDE6, the retinal phototransduction enzyme. This is most pronounced with sildenafil and vardenafil and is rarely associated with tadalafil as the latter has very little affinity for PDE6. An ophthalmologic consultation is not required as the adverse event is well-documented. An ophthalmologist should be seen for loss of visual acuity or blindness. The fact that the patient responded well to sildenafil illustrates that his autonomic neuropathy is minimal and the need for more invasive treatments such as a transurethral PGE1 suppository or intracavernosal injection therapy is low. Penile pain due to PGE1 suppository or PGE1 injection monotherapy may be experienced.

53. A 53-year-old man has atypical small acinar proliferation (ASAP) on prostate biopsy. This suggests that the diagnosis of prostate cancer cannot be made due to insufficient:

A. gland size.
B. gland number.
C. nuclear atypia.
D. basal cells.
E. luminal cells.

ANSWER=B

Atypical small acinar proliferation (ASAP) is noted in 7.6% of men undergoing a prostate biopsy. In these men, small glands, consistent with cancer, are noted, but in an insufficient number to confirm the diagnosis of prostate cancer. Basal cells, identified morphologically or immunohistochemically would suggest benign glands as they are not present in cancer. Nuclear atypia of the luminal cells is generally present in suspicious glands but is not diagnostic in and of itself for invasive adenocarcinoma. For men with atypical small acinar proliferation, repeat biopsy is recommended.

54. A 22-year-old woman with spina bifida is found to have a tethered cord. Pressure flow urodynamic studies will most likely demonstrate:

A. detrusor overactivity.
B. smooth sphincter dyssynergia.
C. decreased sensation.
D. stress urinary incontinence.
E. detrusor underactivity.

ANSWER=A

Adults with a tethered cord may have altered bladder function. The symptoms frequently present following activities that stretch the spine. Neurosurgical therapy is controversial in this setting and may not improve the clinical condition. While detrusor underactivity is a common finding in patients with spina bifida, the most frequent urodynamic finding associated with a tethered cord is detrusor overactivity.

55. A 52-year-old man with hematuria has a right-sided 4 cm infiltrative renal mass distorting the collecting system. He had a left radical nephrectomy for RCC three years ago. Chest and abdominal CT scans are otherwise negative. The next step is:

A. radiofrequency ablation.
B. partial nephrectomy.
C. radical nephrectomy.
D. sunitinib.
E. percutaneous biopsy of the renal mass.

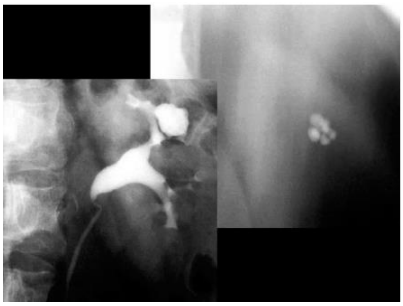
ANSWER=E

In light of the solitary kidney, it is crucial to differentiate RCC from urothelial carcinoma. This should precede any attempt at surgical intervention, such as partial or radical nephrectomy, as this will significantly alter the choice of surgery. Systemic therapy, such as sunitinib, might be an option for this patient, but that would only be a consideration after a tissue diagnosis of RCC was established with a biopsy. Ablative therapy, such as radiofrequency ablation, would be difficult and unlikely to succeed given the mass is over 3 cm in size and is centrally located with distortion of the collecting system. It is, therefore, important to establish a tissue diagnosis prior to considering systemic, extirpative, or ablative therapy in this patient with a solitary kidney.

56. A five-year-old boy has a one day history of frequency, dysuria, and gross hematuria. Urinalysis is significant for 10-20 WBC/hpf and too numerous to count RBC/hpf. Oral amoxicillin is started. Two days later, his symptoms are unchanged. The

urine culture is negative. An ultrasound shows normal kidneys and diffuse bladder wall thickening. The next step is:
A. observation.
B. change antibiotics.
C. fluconazole.
D. steroids.
E. cystoscopy and bladder biopsy.
ANSWER=A
This boy likely has acute hemorrhagic cystitis. This is usually caused by adenovirus in children and is a self-limited infection that does not require any specific treatment although ribavirin treatment has been reported. It occurs more often in boys and is also commonly associated with bone marrow transplantation and other states of immunosuppression. Because viral cultures are rarely done, children with symptoms of acute hemorrhagic cystitis most often have no growth on routine urinary culture. Although no antimicrobial treatment is indicated in healthy individuals with viral cystitis, radiologic evaluation should still be performed to eliminate other causes for hematuria. Fluconazole, steroids, as well as cystoscopy and bladder biopsy are not indicated at this time. .

57. A 32-year-old man has left flank pain. Scout film and retrograde pyelogram are shown. The next step is:
A. CT scan without contrast.
B. CT scan with I.V. contrast.
C. SWL.
D. PCNL.
E. laparoscopic calyceal diverticulectomy.



ANSWER=A
The image demonstrates an upper calyceal diverticulum. SWL is not recommended for the management of calyceal diverticulum with a narrow diverticular neck, as shown here, as fragments are unlikely to clear. PCNL and laparoscopy are appropriate alternatives for management of a calyceal diverticulum; however, before the choice of procedure can be made, it is important to determine whether the diverticulum is in an anterior vs. posterior location, as well as the relationship of the pleura and adjacent organs. PCNL would be utilized for a posterior diverticulum, while laparoscopy would be utilized for an anterior diverticulum. A CT scan without contrast will provide information for each of these variables. The CT scan will also determine the amount of parenchyma overlying the diverticulum. I.V. contrast would not be necessary as the retrograde pyelogram delineates the calculi within the diverticulum.

58. A nine-year-old boy previously treated for a pelvic rhabdomyosarcoma with combined therapy including XRT has a solitary kidney with marked hydronephrosis and a serum creatinine of 1.8 mg/dL. His creatinine normalizes after nephrostomy
placement. A nephrostogram shows a 2.5 cm mid-ureteral stricture. Urodynamics reveal a detrusor pressure of 20 cm H2O at a volume of 150 mL. The most appropriate management is:
A. cutaneous ureterostomy.
B. ureteral reimplant with psoas hitch.
C. Boari flap.
D. ileal ureter.
E. autotransplantation.
ANSWER=D
The child has a long ureteral stricture with a history of XRT. Additionally, his bladder is small with low intravesical pressures at capacity secondary to his pelvic radiation. The length of the stricture and the small bladder make it very unlikely that a Boari flap is feasible. Due to the prior radiation, autotransplantation has increased potential complications over and above the possibility of renal loss. A cutaneous ureterostomy is likely to stenose and cutaneous diversion is not preferred in a nine-year-old. An ileal ureter can be used to replace the entire ureter, if needed, and is preferable to cutaneous diversion in this young child. A continent urinary diversion is not indicated since the bladder is small but functional. Long-term, his bladder pressure will need to be monitored.

59. A 63-year-old man goes into acute urinary retention one day after brachytherapy for low-risk prostate cancer. After two weeks with an indwelling urethral catheter and alpha-blockade, he fails a voiding trial. He is started on CIC and finasteride. The next step is:
A. pressure flow study.
B. cystoscopy.
C. UroLift®.
D. wait three months, if unable to void spontaneously, perform TUIP.
E. wait one year, if unable to void spontaneously, perform TURP.
ANSWER=E
Acute urinary retention is a known complication following brachytherapy that occurs in 2 to 24% of men undergoing the procedure. Patients with higher IPSS scores preoperatively are at greater risk to go into retention postoperatively. When retention occurs immediately after implant, as in this case, it is almost always due to prostatic enlargement/swelling causing bladder outlet obstruction. Patients are usually initially treated with an indwelling urethral catheter and medical management with alpha-blockade and/or 5-alpha-reductaseinhibition. After a one to two week period with the catheter, a voiding trial is usually attempted, but patients often fail this and go on CIC. At this point (two weeks after brachytherapy), there is no need for urodynamics or cystoscopy as the cause of the obstruction is almost always related to the seed implant. The majority of patients will ultimately resolve their retention spontaneously, but roughly 2-7% do not and ultimately require TURP. The timing of this second procedure should be delayed for as long as possible and should not be attempted until at least one year after seed implantation. The reason for this is that the risk of stricture and incontinence is considerable in patients undergoing TURP after brachytherapy; therefore, every effort should be made to allow the patient to resolve the retention on their own. Urodynamics may be considered prior to TURP. When a TURP is undertaken, a minimal resection should be performed with preservation of the bladder neck to maintain the urethral blood supply if possible. There is no data to support the use of UroLift® in this clinical scenario.

60. A 47-year-old healthy woman has a mid-urethral sling to treat stress urinary incontinence. Optimal prophylaxis against DVT should include early postoperative ambulation and:
A. nothing else.
B. graduated compression stockings.
C. intermittent pneumatic compression.
D. aspirin.
E. low molecular weight heparin.
ANSWER=A
The prevention of DVT in patients undergoing anti-incontinence and pelvic reconstructive surgeries should be dictated by preoperative individual patient and procedure specific DVT risk factors. In an uncomplicated patient without risk factors for DVT undergoing an antiincontinence procedure for the treatment of stress urinary incontinence, early

postoperative ambulation is considered adequate prophylaxis against postoperative DVT.

61. The urodynamic finding most predictive of new onset hydronephrosis in a 32-yearold T10 spinal cord injured man managed with antimuscarinic medication and CIC is:
A. bladder compliance < 10 mL/cm H2O.
B. involuntary bladder contraction amplitude of > 100 cm H2O.
C. detrusor LPP < 25 cm H2O.
D. maximum urethral closure pressure > 100 cm H2O.
E. detrusor areflexia at bladder capacity.
ANSWER=A
Bladder compliance is defined as the change in bladder volume divided by the change in detrusor pressure. Although there is not a strict definition of abnormal bladder compliance, most studies would suggest a compliance of < 10-20 mL/cm H2O would be abnormal. Patients with decreased bladder compliance are at great risk for development of upper tract deterioration. The amplitude of phasic involuntary bladder contractions is of little prognostic value due to their transient nature. Detrusor LPP > 40 cm H2O is a risk factor for upper tract deterioration; however, it is not as significant as poor bladder compliance. Neither detrusor areflexia nor increased urethral closure pressures are independent risk factors for hydronephrosis unless associated with elevated storage pressures.

62. The most significant difference between ureteroscopy and SWL in the treatment of a 1 cm lower pole kidney stone is:
A. stone-free rate.
B. need for stenting.
C. length of stay.
D. postoperative complication rate.
E. return to work.
ANSWER=E
One study identified that the major difference between SWL and ureteroscopy for lower pole stones was a return to work, specifically 3.3 days following SWL compared to 8.5 days following ureteroscopy. Although SWL arguably provides acceptable first-line therapy for stones 1 cm or less based on the initial randomized trial, ureteroscopy has been touted as a promising alternative that can improve the stone-free rate with little additional morbidity over SWL. However, in this small trial, investigators were unable to validate the hypothesis that ureteroscopy was superior to SWL. The stone-free rate after ureteroscopy and SWL for lower pole stones of less than or equal to 1 cm was remarkably low and not statistically different between the two modalities. While the results of the study support that either SWL or ureteroscopy may be used in this situation, practitioners and patients must be cognizant of the limitations of treatment modalities that rely on spontaneous fragment passage to achieve a stone-free state. Ultimately, the decision of SWL or ureteroscopy for the treatment of such stones should utilize a shared decision-making approach between patient and physician.

63. A 45-year-old man has a local excision of a pT1 low-grade squamous cell carcinoma of the glans penis. He has a palpable lymph node in the left groin that remains after four weeks of antibiotics. The next step is:
A. observation.
B. fine-needle aspiration of lymph node.
C. left superficial inguinal lymphadenectomy.
D. left complete inguinal lymphadenectomy.
E. left complete and right superficial inguinal lymphadenectomy.
ANSWER=B
Inguinal lymph node involvement in the setting of low-grade, low-stage disease is highly unlikely; however, given the persistent palpable lymph node in this setting, it must be considered. The optimal approach for this patient is fine-needle aspiration, and if this is positive, left complete and right superficial inguinal lymphadenectomy should be performed. Fine-needle aspiration has been reported to have a sensitivity and specificity that is greater than 90% in these circumstances. Observation alone is not adequate, given a palpable lymph node. Immediate lymphadenectomy is overly aggressive, given the low risk of malignancy. .

64. A 58-year-old asymptomatic man has a PSA of 2.4 ng/mL and a normal DRE. He is taking finasteride 1 mg daily to prevent hair loss. The next step is to:
A. repeat PSA in one year.
B. repeat PSA in six months.
C. obtain free/total PSA ratio.
D. stop finasteride and repeat PSA in four months.
E. recommend prostate needle biopsy.
ANSWER=E
Studies have shown that finasteride 1 mg PO qd has a similar effect on PSA levels as finasteride 5 mg PO qd; therefore, the PSA must be adjusted by a factor of 2 to get the true value. In this case, the adjusted PSA is 4.8 ng/mL; therefore, the PSA is elevated. After appropriate discussion and shared decision making, it is recommended that the patient undergo a prostate needle biopsy. Repeat PSA in six or twelve months is not appropriate and may result in a delay in diagnosis. Free/total PSA ratio likely will not add much additional information, as total PSA is above the threshold for biopsy. Stopping finasteride and repeating PSA again may result in a delay of diagnosis.

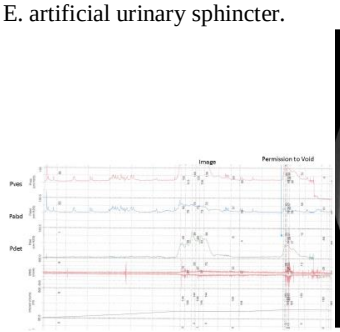
65. A 48-year-old healthy woman with intermittent abdominal pain has a non-contrast CT scan with 2 cm solid adrenal mass measuring 8 Hounsfield units. The metabolic evaluation is normal. The next step is:
A. no further imaging.
B. pre- and post-contrast CT scan.
C. MRI scan with gadolinium.
D. MIBG scan.
E. percutaneous biopsy.
ANSWER=A
This CT scan is consistent with a left adrenal adenoma. The most common incidental adrenal lesion is a benign adenoma in a patient without known malignancy rather than a carcinoma or other malignancy. Of benign entities, an adrenal adenoma is the most common and would fit the imaging characteristic described. An adenoma is lipid-rich and is diagnosed with Hounsfield units (HU) of 10 or less as opposed to the fat-containing myelolipoma which has HU of less than –20. An adrenal cyst has fluid attenuation and no enhancement. Adrenal cancers have higher HU values on precontrast imaging. This patient does not need further imaging, such as an MIBG scan. Percutaneous biopsy is not indicated for an adrenal adenoma.

66. A 16-year-old girl has increased intraoperative bleeding during open revision of the catheterizable channel in a continent ileocecal reservoir (Indiana pouch). The bleeding is likely due to:
A. increased bleeding time.
B. increased PT.
C. thrombocytopenia.
D. decreased factor VIII level.
E. decreased von Willebrand's factor.
ANSWER=B
An ileocecal reservoir utilizes the terminal ileum in a continent reconstruction. The terminal ileum is important in the absorption of fat soluble vitamins. Vitamin K (a fat soluble vitamin) is required for the liver to make factors that are necessary for blood to properly coagulate including factor II (prothrombin), factor VII, factor IX, and factor X. PT and INR measures these factors that make up the extrinsic pathway (VII, X, V, II and fibrinogen). The PTT measures

protein factors in the intrinsic and common pathways in the coagulation cascade (XII, XI, VIII, X, V, and II). von Willebrand's factor is produced in endothelium,megakaryocytes, and subendothelial connective tissue. Its primary function is binding to other proteins, particularly factor VIII, and it is important in platelet adhesion to wound sites. Bleeding time assesses platelet function, and this is not affected by fat malabsorption.

67. A 62-year-old man with Klinefelter syndrome underwent a mastectomy for breast cancer three months ago. He complains of decreased energy and decreased libido. Total testosterone is 210 ng/dL and LH is 15 IU/L. The next step is therapy with:
A. oral phosphodiesterase inhibitors.
B. low dose transdermal estrogen.
C. aromatase inhibitors.
D. testosterone.
E. beta-hCG.
ANSWER=C
Men with Klinefelter syndrome are at increased risk for the development of breast cancer. Approximately 80% of cases are estrogen receptor positive; therefore, any treatment that increases estrogen levels is contraindicated unless the patient is cured of breast cancer. This patient has symptomatic hypogonadism which would benefit from an increase in serum testosterone, but he was recently treated for breast cancer. In men, a portion of testosterone is converted to estradiol, primarily in adipose tissue. Aromatase inhibition will decrease conversion of testosterone to estrogen thereby raising testosterone levels while at the same time decreasing estrogen levels. This is safe in men with breast cancer. Phosphodiesterase inhibitors are indicated for erectile dysfunction, which this patient does not have. Estrogen therapy has no role in treating these symptoms in men and risks stimulation of breast cancer cell growth. Human chorionic gonadotropin (hCG) will increase testicular production of testosterone. The increased peripheral testosterone levels from either hCG or testosterone therapy will result in increased estrogen levels due to the peripheral conversion to estrogen; therefore, these are inappropriate therapies in men with breast cancer. In patients with Klinefelter syndrome without breast cancer, the standard treatment of hypogonadism with testosterone replacement is safe.

68. A 75-year-old man with Parkinson's disease has worsening urinary incontinence and LUTS despite tamsulosin. PVR is 80 mL and urinalysis is negative. Videourodynamics is shown with image taken at a point of urinary urgency. The next step is:
A. CIC.
B. beta-3 agonist.
C. onabotulinumtoxinA injections.
D. sacral neuromodulation.
E. artificial urinary sphincter.



ANSWER=B
The urodynamics show detrusor overactivity and incontinence. The video view shows a dilated proximal urethra and findings likely consistent with detrusor overactivity and sphincter bradykinesia. CIC would be premature as his PVR is only 80 mL. OnabotulinumtoxinA and neuromodulation may be an option at some point for him if he is refractory to medications. Beta-3 agonist is the best choice for this patient. While anticholinergics were not offered as a treatment option, these drugs should be used with caution in Parkinson's patients. Many of these patients have a high anticholinergic burden due to other drugs and may have significant dry mouth, constipation, and cognitive decline. Artificial urinary sphincter is for stress incontinence and would not be indicated.

69. When dissecting the ureterovesical junction during an extravesical ureteral reimplantation, the vas deferens is located:
A. anterior to the ureter.
B. posterior to the ureter.
C. lateral to the umbilical artery.
D. anterior to the superior vesical artery.
E. lateral to the gonadal artery.
ANSWER=B
Recognition of this anatomic relationship between the ureter and vas deferens is critical during extravesical ureteroneocystostomy. The ureter typically lies inferior to the umbilical artery and superior vesical artery. The vas deferens is seen posterior to the ureter. The vas deferens lies medial to the gonadal artery. More proximally on the ureter, the vas deferens is located more anteriorly and laterally.

70. A 24-year-old infertile man has a normal physical examination, serum testosterone of 340 ng/dL and isolated oligospermia with normal volume on two semen analyses. His wife's evaluation is normal. The next step is:
A. repeat semen analysis.
B. antisperm antibody testing.
C. scrotal ultrasound.
D. intrauterine insemination.
E. adoption.
ANSWER=D
The patient has oligospermia (low sperm concentration). No correctable anatomical or endocrinological abnormalities are present. Further evaluation with scrotal ultrasonography for a subclinical varicocele will not be helpful. Since two semen analyses show the same defects, a repeat semen analysis will be of no value. If the two analyses were discrepant, another specimen would be useful. No indication for antisperm antibody testing is present. While adoption is an option, this couple has not exhausted their therapeutic options for conception using the male partner's sperm. Intrauterine insemination is thus the next step for this couple with isolated oligospermia.

71. Patients with calcium oxalate calculi and hyperuricosuria should obtain their dietary protein intake from vegetables and:
A. poultry.
B. fish.
C. red meat.
D. dairy products.
E. nuts.
ANSWER=D
Meat, fish, and poultry are rich in uric acid precursors. The greatest reduction in uric acid stone risk has been demonstrated in individuals following a lacto-ovo-vegetarian diet. Though nuts are a good alternate source of protein, urinary oxalate may increase with an excess dietary intake.

72. Six hours after a Gomco clamp circumcision in the nursery, a 5 mm skin separation on the ventral side with exposed subcutaneous tissue is noted. The next step is:
A. wet-to-dry dressing changes.
B. suture the skin edges.
C. suture the skin edges under general anesthesia.
D. split thickness skin graft.
E. full thickness skin graft.
ANSWER=A

The most common pediatric penile trauma is caused by infant clamp circumcision. If excess skin is excised and subcutaneous tissue is exposed, the majority can be treated by wet-todry dressing changes and antibiotic ointment. This approach results in an excellent cosmeticappearance. In general, there is no need to subject an awake baby to suturing. General anesthesia carries significant risks during the newborn period. Unless the penile degloving is extensive, skin grafting is unnecessary.

73. A 68-year-old man with advanced prostate cancer is to receive sipuleucel-T (PROVENGE®). Premedication should include acetaminophen and:

A. antihistamine.
B. mineralocorticoid.
C. glucocorticoid.
D. benzodiazepine.
E. opioid.
ANSWER=A

Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex-vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colonystimulating factor (an immune-cell activator). In men with asymptomatic or minimally symptomatic castration-resistant prostate cancer, a 4.1 month median overall survival was demonstrated compared to placebo. The most common side effects include chills, fatigue, and pyrexia, which are common with the release of cytokines. The recommended premedications are acetaminophen and an antihistamine. Glucocorticoids and opioids are sometimes given at the time of I.V. chemotherapy but are not indicated at the time of immune therapy. Mineralocorticoids and anxiolytics are not indicated for this immunotherapy.

74. A 20-year-old man has concurrent gross hematuria and a severe sore throat. His temperature is 38º C and blood pressure is 150/80 mm Hg. His hemoglobin is 12.9 g/dL, WBC 16,400 cu mm, BUN 34 mg/dL, and creatinine 2.6 mg/dL. Urine dipstick shows 2+ protein, 4+ blood, and is otherwise negative. Renal ultrasound reveals no hydronephrosis. He had a similar episode five years ago. The next step is:

A. amoxicillin.
B. prednisolone.
C. ACE inhibitor.
D. non-contrast CT scan.
E. renal biopsy.
ANSWER=E

This clinical presentation is highly suggestive of progressive IgA nephropathy, which is one of the most common forms of primary glomerulonephritis (GN). It is more common in males and presentation typically occurs in the second and third decades of life. A temporary association of disease flare with pharyngitis or upper respiratory infection is well recognized and generally occurs within days of the infection, whereas post-infectious GN occurs two to three weeks after the onset of infection. Given his renal insufficiency and the fact he had a similar episode five years ago, this may be a chronic, progressive process. An aggressive evaluation is, therefore, warranted. Oral amoxicillin therapy and conservative follow-up evaluation are thus incorrect. With normal renal ultrasound and the presence of proteinuria, post-renal obstruction is unlikely, and thus, CT scan is incorrect. Although systemic steroid therapy and ACE inhibitor are indicated in some forms of GN, a diagnosis must be established first via renal biopsy.

75. A 23-year-old woman has bothersome urinary leakage during soccer games and denies incontinence at other times. Regimented pelvic floor muscle training has not improved her incontinence. The next step is:

A. imipramine.
B. incontinence pessary.
C. radiofrequency ablation (Renessa®).
D. mid-urethral sling.
E. pubovaginal sling.
ANSWER=B

Situational stress urinary incontinence (SUI) in a young woman can be bothersome. Initial treatments with pelvic floor muscle training can be successful for many women with milder forms of SUI. Imipramine is considered off label with potentially harmful side effects and is not included as a possible treatment for SUI in the AUA/SUFU Guidelines. Radiofrequency ablation is an invasive strategy and is not well tested in young women. Slings should be avoided until after childbearing age (if possible) and probably are excessive for this type of incontinence. This is an instance where an incontinence device or pessary might be tried since it will be used for relatively short periods of time.

76. A 34-year-old woman has been prescribed topiramate for seizures. She now suffers from recurrent stone events. She wishes to continue the medication. To reduce stone risk, the next step is:

A. allopurinol.
B. captopril.
C. potassium citrate.
D. sodium bicarbonate.
E. thiazide.
ANSWER=C

Topiramate induces a distal renal tubular acidosis, as it impairs the excretion of hydrogen ions by the distal renal tubule. As a result, these patients form calcium phosphate stones. Although the preferred treatment would be discontinuation of topiramate, that is not always possible. In such cases, initiation of potassium citrate, as one would do for distal renal tubular acidosis, is the next step. Allopurinol will reduce urine uric acid, but will not affect stone formation with topiramate. Captopril may be used for patients with cystinuria who are unable to tolerate D-penicillamine or alpha-mercaptopropionylglycine. Sodium bicarbonate can also treat distal renal tubular acidosis, but due to the sodium load, it is not preferred over potassium citrate. Finally, thiazide therapy will treat hypercalciuria, but that is not the primary lithogenic factor in the present patient.

77. A 62-year-old healthy woman with metastatic urothelial carcinoma receives gemcitabine/cisplatinum chemotherapy with disease stabilization. Six months later, she has disease progression. Her creatinine is 1.8 mg/dL. The next step is:

A. observation.
B. gemcitabine/carboplatinum.
C. dose-dense M-VAC.
D. nivolumab.
E. cabozantinib.
ANSWER=D

Immune modulation using checkpoint inhibitors has shown promise in the treatment of several malignancies, including urothelial carcinoma. Programmed death-ligand 1 (PD-L1) is an inhibitory immune pathway exploited by cancer which results in suppressed T-cell proliferation and reduced cytokine production. PD-1/PD-L1 inhibition may prevent T-cell suppression throughout the tumor microenvironment, enhancing the immune response to tumor cells. Both atezolizumab and nivolumab are FDA approved PD-L1 inhibitors, and both avoid the renal toxicity of cis-platinum based regimens. Nivolumab is approved for the treatment of patients with locally advanced or metastatic urothelial carcinoma whose disease progressed within 12 months of neoadjuvant or adjuvant treatment

with platinumcontainingchemotherapy. In the largest study of this agent, the objective response rate was 19.6% (53 of 270 patients). Seven patients had complete responses and 46 had partial responses. The estimated median duration of response was 10.3 months. Since this patient has good performance status, additional treatment should be considered. Additional gemcitabine/cis-platinum or M-VAC chemotherapy could further compromise renal function and she has already failed gemcitabine/cis-platinum. Treatment with carboplatinum, while limiting renal toxicity, is not as efficacious as cisplatinum and is also unlikely to be beneficial in this setting. Cabozantinib, an inhibitor of MET and VEGF pathways, is being investigated in patients in whom previous chemotherapy has failed, but the final results of these clinical trials have not yet been reported.

78. A 65-year-old woman on chronic narcotics for cervical disc disease is scheduled for a radical cystectomy for a cT3N0M0 urothelial cancer on the dome of her bladder. Her creatinine is 1.2 mg/dL and urinalysis shows 1+ protein. The following is contraindicated:

A. a combined epidural and general anesthetic.
B. the use of alvimopan (EnteregTM).
C. a robotic approach to cystectomy.
D. a continent cutaneous diversion.
E. an orthotopic neobladder.

ANSWER=B

Alvimopan is a peripherally active mu-opioid antagonist that is approved for the treatment/prevention of postoperative ileus in patients undergoing bowel resection with primary anastomosis. In a randomized controlled trial of 277 patients undergoing radical cystectomy, the alvimopan group experienced a quicker GI recovery (5.5 vs. 6.8 days), a shorter length of stay (7.4 vs. 10.1 days), and fewer episodes of postoperative ileus related morbidity (8.4% vs. 29.1%); however, alvimopan is contraindicated for use in patients who have taken therapeutic doses of opioids for more than seven consecutive days immediately before starting alvimopan. Patients recently exposed to opioids are expected to be more sensitive to the effects of mu-opioid receptor antagonists (i.e., abdominal pain, nausea/vomiting, diarrhea). The use of an epidural for postoperative pain is not contraindicated in patients with disc disease away from the area where the catheter will be inserted. The narcotic use, disc disease, and a cT3N0M0 tumor are not contraindications to robotic surgery. The patient's renal function is adequate for a continent diversion. The tumor is at the dome of the bladder so a neobladder is a reasonable option.

79. A ten-year-old boy has several weeks of dysuria and intermittent gross hematuria. Urine culture is negative. Bladder ultrasound is shown. Transurethral biopsy reveals diffuse inflammatory cells and eosinophils throughout the entire bladder wall. The next step is:

A. observation.
B. oral antibiotics for 14 days.
C. oral antibiotics, steroids, and antihistamines.
D. repeat cystoscopy and TUR.
E. partial cystectomy.

ANSWER=C

The biopsy specimen is consistent with eosinophilic cystitis, with inflammatory cells and eosinophilia throughout the entire bladder wall. The etiology is unclear, but this disease usually presents in young boys. The disease is self-limiting in neonates and young children and these patients can be observed. For patients with symptoms, treatment consists of antibiotics, corticosteroids, and antihistamines with or without TUR if an isolated lesion is identified. There is no role for isolated antibiotic therapy or radical resection with partial cystectomy.

80. The most effective way to minimize the risk of nephrogenic systemic fibrosis for ESRD patients undergoing MRI scan with I.V. gadolinium is to:

A. use gadodiamide as contrast agent.
B. use gadobutrol as contrast agent.
C. use gadoteridol as contrast agent.
D. perform peritoneal dialysis after MRI scan.
E. perform hemodialysis after MRI scan.

ANSWER=E

If gadolinium administration cannot be avoided in patients with ESRD on dialysis, the most effective way to minimize the risk of nephrogenic systemic fibrosis (NSF) is hemodialysis immediately after gadolinium administration. Peritoneal dialysis is not the best answer, because it does not efficiently remove the agent in one setting. All types of gadolinium agents have a risk for NSF, with gadodiamide at higher risk than gadobutrol or gadoteridol.

81. A 68-year-old woman with multiple sclerosis and a chronic indwelling catheter for five years has a 24 French suprapubic tube placed. Six weeks postoperatively, she hasurinary incontinence despite antimuscarinics. Cystoscopy shows the suprapubic tube to be in good position, bladder capacity is 60 mL, and urine leaks per urethra with filling. The next step is:

A. bulking agent.
B. mid-urethral sling.
C. upsize suprapubic catheter.
D. augmentation cystoplasty.
E. ileal conduit.

ANSWER=E

The small bladder capacity is problematic for this patient. She likely has sphincter deficiency with the long-term urethral catheter and this is revealed after placement of the suprapubic tube. She probably needs both outlet and bladder management. A bulking agent will not be sufficient in the majority of these cases and mid-urethral sling will not be ideal in cases of likely intrinsic sphincter deficiency and neurogenic outlet changes. OnabotulinumtoxinA injections may be considered if the outlet is adequate. Bladder augmentation alone may increase her capacity, but the outlet damage needs to be addressed if this is considered. She would be best served with an ileal conduit diversion as the bladder is likely too damaged to be salvaged. A larger suprapubic tube would not address the incompetent bladder outlet.

82. A 79-year-old woman has a bulking agent injection for stress incontinence. Postprocedurally, the nurse tells you the injected material has expired. The next step is:

A. disclose to patient and initiate safety event reporting system (SERS).
B. notify Joint Commission.
C. consult legal service.
D. remove injectable.
E. I.V. antibiotics.

ANSWER=A

While no exact plan can be developed for each adverse event, in this setting, the injectable has an expiration date that is meant by the manufacturer to represent sterility of the product. The best course of action is to disclose this to the patient and monitor, as well as creating a plan to put preventative measures into action to keep this from happening again (i.e., root cause analysis). Removing the injectable is not feasible. Notifying the Joint Commission is not required and will not aid in the care of this patient or prevention of

another event from occurring; however, according to their website, practitioners areencouraged to submit these types of sentinel events. While legal services may assist in the best course of action, this is still likely to follow the above steps of disclosure and surfaceenhanced

83. A 60-year-old, 80 kg man has bothersome diurnal urinary frequency. Urinalysis is normal. His voiding diary shows fluid intake of 1800 mL/24 hours. Total urine output is 3500 mL/24 hours (12 voids) with 800 mL overnight (3 voids). The next step is:

A. sleep study.
B. fasting glucose.
C. overnight water deprivation test.
D. alpha-adrenergic blocker.
E. antimuscarinic medication.

ANSWER=C

This man has global polyuria, as evidenced by his total daily urine production exceeding 40 mL/kg (expected volume 2800 mL). The next step would be to check his urine osmolality after an overnight water deprivation test. A urine osmolality of > 800 mOsm/kg supports a diagnosis of primary polydipsia, while < 800 mOsm/kg should prompt a renal concentrating capacity test to assess the etiology of diabetes insipidus. This man's nocturnal polyuria index (NPi) is < 33% and he does not satisfy criteria for nocturnal polyuria. Hence, evaluation for diabetes mellitus with a fasting glucose and obstructive sleep apnea with a sleep study would not help to arrive at the correct diagnosis. Starting this man on medications such as an alpha-blocker or antimuscarinic is premature without additional evaluation, and neither would help global polyuria.

84. During videourodynamics, a 61-year-old woman with mixed incontinence has immediate leakage with filling at 10 mL volume. The next step is:

A. increase size of catheter tubing.
B. check catheter position fluoroscopically.
C. change to air-charged catheter.
D. change fluid medium.
E. increase fill rate.

ANSWER=B

This patient likely has a catheter that is curled out of position and into the urethra (i.e., back on itself) or inadvertently placed into the vagina. Thus, when she is filled with the fluid, it simply leaks back. Fluoroscopy, in this case, can be done to immediately confirm if the catheter is in the correct position. Similarly, in non-fluoroscopic urodynamics, one maymanually adjust the catheter position. Increasing the size of the catheter tubing and changing catheter types to air-charged may help eliminate some other artifacts, but at this point is not indicated. The fluid medium is not going to change anything in this case as one at least needs to use something that is visualized fluoroscopically (i.e., contrast medium). Decreasing the fill rate may be helpful in cases where too fast a fill elicits artifact or in cases of early detrusor overactivity, but increasing it will not be beneficial.

85. A 45-year-old man has bothersome LUTS and a newly discovered 2 cm proximal penile urethral stricture. The best initial treatment is:

A. urethral balloon dilation.
B. dilation with urethral sounds.
C. endoscopic urethrotomy.
D. augmentation urethroplasty with buccal graft.
E. excision and primary anastomosis.

ANSWER=D

The best initial treatment of penile urethral stricture is urethroplasty, due to the high recurrence rate of penile urethral strictures with dilation or urethrotomy. This differs from bulbar urethral stricture and from fossa/meatal strictures where initial endoscopic treatment is warranted. When performing a urethroplasty in the penile urethra, augmentation techniques are preferred over anastomotic techniques due to the risk of chordee with the latter.

86. A 68-year-old woman has a vaginal bulge and stress urinary incontinence. Physical exam shows a POP-Q of Ba: +1, C: 0, D: -5, Bp: -2, TVL: 8 cm. Loss of urine is seen with cough. PVR is 110 mL and urinalysis is negative. The next step is sling and:

A. cystocele repair.
B. cystocele and rectocele repair.
C. transvaginal hysteropexy.
D. abdominal sacrouteropexy.
E. vaginal hysterectomy and cystocele repair.

ANSWER=E

This patient has prolapse and stress urinary incontinence. The POP-Q is notable for stage 2 uterovaginal prolapse (C: 0) and anterior vaginal wall laxity (Ba: +1). There is no evidence of posterior wall laxity (Bp: -2). The discrepancy between the cervical position and posteriorfornix (C: 0 and D: -5) is related to the elongated cervix. Accordingly, hysteropexy and sacrouteropexy would not be ideal options as the elongated cervix would not be addressed. The prolapsed compartments would need to be addressed and include the apex and anterior wall. Doing a cystocele repair alone would be insufficient and a rectocele repair is not indicated, because there is no posterior wall laxity.

87. During test stimulation for neuromodulation, a woman describes a tapping sensation in the perianal area. Anal bellows is seen and there is no lower extremity movement with stimulation. The next step is:

A. place temporary lead in this location.
B. place needle in foramen one level above.
C. place needle in foramen one level below.
D. place needle in contralateral foramen at same level.
E. advance needle deeper into foramen and re-test.

ANSWER=B

This woman's needle is in S4, producing only a pelvic floor and anal contraction without lower extremity response. The preferred level of stimulation is at S3, which produces a motor response of dorsiflexion of the great toe and bellows contraction of the perineal area. This represents a contraction of the levator muscles (bellows reflex). Motor response to S2 stimulation consists of contraction of the gluteal muscles and leg rotation. If the needle is in either S3 or S4, the patient will typically feel a tapping sensation in the perianal area, while S2 will typically give a sensation several centimeters away from the anal canal. While needle depth can be manipulated for optimal response, this patient's needle is in the S4 foramen, and the needle should be placed in the S3 foramen one level above. Changing to the contralateral side may be performed if an inadequate S3 response is obtained on the ipsilateral side.

88. A 35-year-old man who had an uncomplicated vasectomy seven months ago has had gradually declining sperm concentrations on his three prior post-vasectomy semen analysis (PVSA) tests. His PVSA now reveals 90,000 non-motile sperm/mL. The next step is:

A. repeat a PVSA in one month.
B. undergo a repeat vasectomy.
C. stop using contraception.
D. submit a post-ejaculate urinalysis.
E. continue contraception use in partner.

ANSWER=C

The AUA Vasectomy Guidelines state that patients may stop using other methods of contraception when examination of one well-mixed, uncentrifuged fresh post-vasectomy semen analysis (PVSA) specimen shows azoospermia or only rare non-motile sperm (RNMS)

< 100,000 non-motile sperm/mL. This patient has a sperm concentration of 90,000 nonmotile sperm/mL and is thus cleared to stop using contraception. A repeat PVSA, a repeat vasectomy, and use of female contraception are not necessary given the success of his vasectomy procedure. Post-ejaculate urinalysis is not indicated in the setting of PVSA testing.

89. During a left radical nephrectomy for a large tumor, a major artery is inadvertently transected. The artery most commonly mistaken for the renal artery in this setting is the:

A. inferior mesenteric.
B. superior mesenteric.
C. inferior adrenal.
D. splenic.
E. hypertrophied lumbar.

ANSWER=B

The superior mesenteric artery (SMA) arises from the anterior surface of the descending aorta. It arises behind the neck of the pancreas, crosses the duodenum, and enters the root of the bowel mesentery. When dissecting large left renal tumors, the renal artery may not be readily visualized when the tumor encroaches upon the aorta. The SMA can then be mistaken for the renal artery and divided. This has significant consequences and is a catastrophic event that must be rapidly reversed if the patient is to survive. A vascular surgeon should be immediately called to the operating room for repair of this vessel which provides blood supply to the entire small bowel, as well as the cecum, and ascending and transverse colon. The inferior mesenteric artery comes off much lower on the aorta and is smaller in caliber. This artery provides blood to the distal transverse, descending and sigmoid colon, and can be safely ligated as long as the marginal artery of the colon is patent and can supply blood from the SMA to the left colonic arcades. The splenic artery arises from the celiac artery in a more cephalad location and is less likely to be mistaken for the renal artery. The lumbar vessels come off posteriorly and the adrenal vessels are minor branches of the renal artery.

90. Avanafil (Stendra™) is distinct from the other PDE-5 inhibitors in that it:

A. has the longest half-life.
B. has the least side effects.
C. has the greatest efficacy.
D. is absorbed without impact by high-fat meals.
E. is indicated for onset within 15 minutes.

ANSWER=E

In September 2014, avanafil became the only FDA-approved erectile dysfunction (ED) medication indicated to be taken as early as approximately 15 minutes before intercourse. Avanafil has the shortest Tmax of 0.3-0.5 hours. There is no data to suggest that avanafil has the least side effects nor greatest efficacy compared to the other PDE-5 inhibitors. The half-life of avanafil is 3-5 hours compared to 3-5 hours for sildenafil, 4-5 hours for vardenafil and 17.5 hours for tadalafil. Avanafil, sildenafil, and vardenafil all have reduced absorption with high-fat meals.

91. A 42-year-old woman with abdominal pain has a non-contrast CT scan that demonstrates a retroperitoneal mass encasing the aorta and inferior vena cava and no hydronephrosis. Serum creatinine is 5.0 mg/dL and serum potassium is 5.0 mEq/L. Percutaneous biopsy of the mass demonstrates no evidence of malignancy. The next step is:

A. diuretic renogram.
B. abdominal and pelvic MRI scans.
C. oral corticosteroids.
D. bilateral ureteral stent placement.
E. ureterolysis.

ANSWER=D

This patient has retroperitoneal fibrosis. When this process involves both the ureters and renal collecting systems, it may result in ureteral obstruction without radiographic evidence of hydronephrosis; therefore, ureteral stent placement should be considered in this setting, as this may improve the patient's metabolic status. Nuclear renography will be nondiagnostic given her reduced renal function. An MRI scan may be useful, but correcting this patient's azotemia should be the first step in management. Corticosteroids and/or ureterolysis are commonly used to treat retroperitoneal fibrosis, but the possible renal obstruction should be addressed first in order to prevent permanent loss of renal function. An alternative to ureteral stenting would be bilateral percutaneous nephrostomy tubes, but this may be challenging without hydronephrosis.

92. A 74-year-old healthy woman had multiple low grade pTa urothelial carcinomas over the past three years. She receives induction BCG and has a solitary 2 mm papillary tumor nine months later. The next step is fulguration and:

A. observation.
B. maintenance BCG.
C. repeat six-week course of BCG.
D. intravesical valrubicin.
E. radical cystectomy.

ANSWER=A

This patient clearly has recurrent, non-muscle invasive disease that is still deemed at low risk of progression. The risk of recurrence at five years is at least 60-70%, while the risk of progression to higher stage disease is < 5%. Of the options, observation after fulguration is the appropriate next step. Other considerations in the treatment of this patient would include evaluation of the upper tracts with imaging and intravesical chemotherapy, such as mitomycin. There are also other strategies to decrease the burden of treatment in patients who have multiple small recurrences of low-grade urothelial carcinoma; these include less frequent cystoscopy, office fulguration, and selective delayed treatment of recurrences. Intravesical BCG (induction course or maintenance) will be unlikely to change the recurrence pattern and has the risk of permanent bladder symptoms and risk of systemic side effects of treatment. Valrubicin is approved for use in BCG-refractory CIS or high-grade disease. There is no indication for cystectomy in recurrent low volume, low-grade disease.

93. Two days after completing his first penile intralesional collagenase injection, a 43- year-old man is awakened with significant penile pain and severe swelling which is confirmed on examination. The next step is:

A. delay his second injection for one week.
B. discontinue intralesional collagenase injections.
C. ibuprofen.
D. cystoscopy.
E. penile exploration.

ANSWER=E

Intralesional injections can cause pain and swelling for several days and weeks after the injection; however, a penile fracture can occur in roughly 0.5% of patients after intralesional collagenase injections. There should be a high index of suspicion for a penile fracture in patients with sudden onset of penile pain and swelling shortly after an intralesional collagenase injection; thus, this patient should undergo a penile exploration. NSAIDS are indicated for penile pain during the active phase of Peyronie’s disease but are not the treatment for a suspected penile fracture. A penile ultrasound can have a false negative result in the setting of significant penile swelling and, thus, should not be used as the sole determinant whether a patient should undergo a penile exploration. Cystoscopy should not be performed at the time of penile exploration if a penile fracture is expected to be dorsal. If one suspects a ventral fracture (as after sexual intercourse), cystoscopy would be indicated.

Delaying the second injection or discontinuing further intralesional collagenase injections would be inappropriate as the sole therapy in the setting of a suspected penile fracture.

94. A 32-year-old man sustains a scrotal avulsion injury. Fifty percent of the remaining scrotal skin is bruised and dusky. The next step is:

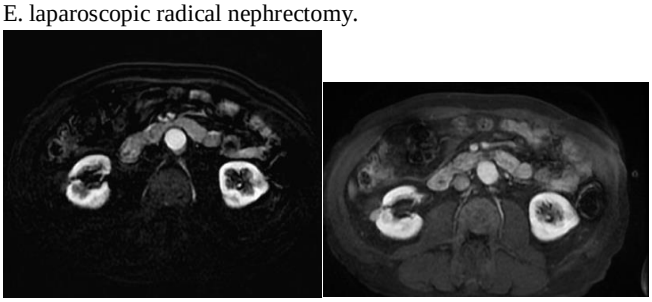
A. observation for 24 hours.
B. place a wound vacuum-assisted closure dressing.
C. debridement and primary closure.
D. place testicles in thigh pouches.
E. reconstruction with split-thickness skin graft.

ANSWER=A

The initial management of complex scrotal avulsion injuries is observation for 24 hours to allow for clear demarcation of tissue viability. Saline soaked packs should be applied during this interval to keep the exposed tissues moist. Other techniques mentioned should only be considered after a period of observation, as they may not be necessary depending on the observed demarcation at 24 hours.

95. A 55-year-old man had laparoscopic cryoablation for a 3 cm Fuhrman grade 3 clear cell RCC of the right kidney. MRI scans at one and two years postoperatively are shown. His creatinine is 1.8 mg/dL (estimated GFR of 40 mL/min/1.73 m2) and he is asymptomatic. The next step is:

A. continued surveillance.
B. repeat laparoscopic cryoablation.
C. percutaneous cryoablation.
D. laparoscopic partial nephrectomy.
E. laparoscopic radical nephrectomy.



ANSWER=C

The images reveal a new enhancing solid mass in the cryosurgical ablation bed of the right kidney. Recent meta-analyses have evaluated the risk of local tumor recurrence following cryoablation to be approximately 7-10%. Continued surveillance is a poor option as this mass has a growth rate associated with progression risk in the lifetime of the patient. The AUA Small Renal Mass (SRM) Guidelines Panel suggests that partial nephrectomy in this setting is fraught with a high complication rate and this has been borne out by Nguyen and colleagues. In addition, when offered attempted partial nephrectomy, this should be performed via an open approach. Due to his chronic renal insufficiency, radical nephrectomy is not an ideal option. Repeat cryoablation is the most commonly chosen therapy in this setting and is likely to be less morbid and more successful if performed via a percutaneous approach.

96. A 38-year-old woman has had multiple calcium phosphate stone events requiring SWL and ureteroscopy. A 24-hour urine collection shows calcium 195 mg (normal < 200), oxalate 25 mg (normal < 40), citrate 600 mg (normal > 500), sodium 140 mg (normal < 150), pH 6.8 (normal 5.8-6.2), and volume 2.0 liters. To best reduce future stone events, the next step is:

A. dietary protein restriction.
B. dietary sodium restriction.
C. magnesium oxide/pyridoxine.
D. potassium citrate.
E. thiazide.

ANSWER=E

Strictly speaking, the patient's urinary parameters are normal; however, she is a recurrent stone former. To best reduce her future stone risk, the AUA Guideline for the Medical Management of Kidney Stones recommends that for patients with high or high normal urinary calcium, thiazide medication is used. The patient already has a normal urinary sodium excretion, so further reduction of sodium intake will not affect stone risk. Dietary protein restriction will not affect this patient's calcium phosphate stone risk. As urineoxalate excretion is normal, magnesium oxide/pyridoxine will not be of benefit. Potassium citrate should not be used in a calcium phosphate stone former who already has an

97. In addition to a similar histologic appearance, penile CIS and Bowenoid papulosis share a similar:

A. age at presentation.
B. growth pattern.
C. association with HPV-16.
D. risk of malignant progression.
E. treatment.

ANSWER=C

Bowenoid papulosis usually manifests itself as multiple, often pigmented papules on the penile skin or glans ranging in size from 0.2 to 3.0 cm in diameter. Diagnosis is confirmed by biopsy, but its histologic appearance is similar to carcinoma in situ. Similar to CIS, DNA sequences suggestive of HPV-16 have been found in Bowenoid papulosis and a causative role for HPV is suspected. Bowenoid papulosis generally presents at a younger age than CIS, usually in the second or third decade of life, and in contrast to CIS, can display differing growth patterns. Although histologically it has the same appearance as CIS, there is no risk of malignant progression and the clinical course is invariably benign. Treatments for CIS include laser ablation, imiquimod, and 5-FU topical therapy and are typically not needed for Bowenoid papulosis.

98. Consumption of 2000 mg/day of Vitamin C will result in:

A. hypercalciuria.
B. hyperoxaluria.
C. hyperuricosuria.
D. hypocitraturia.
E. low urinary pH.

ANSWER=B

Vitamin C (ascorbic acid) is metabolized to oxalate. There is robust evidence that 1 to 2 grams of ascorbic acid administered daily to both normal subjects and calcium oxalate stone-formers result in no urinary pH changes but an increased urinary oxalate excretion; therefore, this practice should not be used in calcium oxalate stone-formers, as it might promote stone activity.

99. A 32-year-old infertile man has two semen analyses that both reveal low ejaculate volume azoospermia. Both samples were centrifuged and the pellets revealed no sperm. The vas deferens and the distal 2/3 of his epididymides are absent bilaterally. The genetic testing that should be ordered is:

A. KAL-1 gene mutation.
B. androgen receptor gene mutation.
C. cystic fibrosis transmembrane conductance regulator gene mutation (CFTR).
D. Y-chromosome microdeletion.
E. karyotype.

ANSWER=C

This patient has a cystic fibrosis gene mutation causing congenital bilateral absence of the vas deferens (CBAVD). Both he and his partner should undergo cystic fibrosis transmembrane conductance regulator gene mutation (CFTR) testing prior to in vitro fertilization (IVF) with sperm harvest. KAL-1 gene mutations cause hypogonadotropic hypogonadism. Androgen receptor gene mutations result in phenotypic females with primary amenorrhea. Y-

chromosome microdeletion and karyotype testing are both indicated in men with non-obstructive azoospermia, but this patient's physical examination suggests that he has obstructive azoospermia due to CBAVD.

100. A 47-year-old man with a history of pelvic XRT for colon cancer and chronic bilateral ureteral stents develops persistent gross hematuria. Cystoscopy and CT scan of the abdomen and pelvis are normal. The next step is:
A. bed rest, hydration, and serial hematocrit evaluation.
B. selective angiography.
C. ureteral stent exchange.
D. ureteroscopy.
E. abdominal exploration.
ANSWER=B
Most reported ureterovascular fistulae are ureteroiliac artery fistulae. Most cases of ureteroarterial fistulae are reported in patients with a prior history of vascular disease, XRT, and/or pelvic surgery, especially in the setting of indwelling ureteral stents. The routine urologic and radiologic evaluation of hematuria will generally not provide evidence of ureterovascular fistula. Selective or subselective arteriography of the iliac vessels has a higher probability of finding the fistula at which time embolization or vascular stenting can be implemented.

101. A 70–year-old man has a radical cystoprostatectomy with a right colon continent cutaneous diversion. Twenty-four days postoperatively, his pouch output becomes feculent. He is clinically stable. A CT scan shows a fistula between his pouch and his bowel anastomosis without evidence of distal bowel obstruction. The next step is to place a catheter in the pouch and:
A. start an elemental (low residue) diet.
B. begin TPN with NPO status.
C. place bilateral nephrostomy tubes.
D. perform a diverting ileostomy.
E. perform a re-do ileocolostomy and repair pouch.
ANSWER=A
The patient has a fistula between his anastomosis and his right colon continent cutaneous diversion without evidence of distal obstruction. This rare complication occurs in less than 5% of patients. In approximately two-thirds of reported cases, the fistula will resolve with conservative management. In a stable patient, a trial of an elemental diet is the initial step, which, if unsuccessful, should be followed by NPO and TPN. Bilateral nephrostomy tubes will not stop enteric content moving from the higher pressure intestine into the lowpressure reservoir. If the fistula was very high volume or the patient was septic, than a diverting ileostomy would be the appropriate step. Redoing the bowel anastomosis and repairing the pouch should be performed in a delayed fashion for fistulas that do not close.

102. A 33-year-old infertile man has a serum testosterone level of 150 ng/dL and an LH of 1.5 IU/L. The medication most likely responsible is:
A. exogenous testosterone.
B. hydrocodone.
C. sertraline.
D. risperidone.
E. finasteride.
ANSWER=B
This patient has hypogonadotropic hypogonadism which may be caused by chronic opioid use. Exogenous testosterone would increase testosterone levels and decrease LH levels through aromatization to estradiol and inhibition of the hypothalamic release of LH. Sertraline and other SSRIs are associated with anorgasmia and anejaculation. Risperidone and other anti-psychotics affect libido by blocking dopamine release. Finasteride is a 5-alpha-reductase inhibitor which leads to slightly elevated levels of testosterone and depression of LH through aromatization of excess testosterone. .

103. A 52-year-old man with CIS of the bladder undergoes an induction course of intravesical BCG. A biopsy six weeks after completion of induction therapy shows persistent CIS. The next step is:
A. intravesical BCG.
B. intravesical valrubicin.
C. intravesical mitomycin C.
D. intravesical gemcitabine.
E. neoadjuvant chemotherapy and radical cystectomy.
ANSWER=A
The 2016 AUA Guideline for the management of non-muscle invasive bladder cancer states that high-risk patients who have persistent CIS after an induction course of BCG should be offered a second course of BCG rather than changing the intravesical agent (such as valrubicin, mitomycin C, or gemcitabine). If a second course also fails, alternative intravesical agents or a clinical trial can be offered to those who are not fit for surgery or refuse surgery. Although primary radical cystectomy in this setting would be an option, in the absence of muscle invasive disease, neoadjuvant chemotherapy is not indicated.

104. The FDA warning for fluoroquinolone antibiotics states that these agents should be avoided for:
A. treatment of uncomplicated UTIs.
B. prophylaxis prior to cystoscopy.
C. long-term use (> 7 days).
D. male patients.
E. patients with fibromyalgia.
ANSWER=A
The FDA warning states that fluoroquinolones should be reserved for use in patients who have no other treatment options for uncomplicated UTIs because the risks of serious side effects (tendon rupture) generally outweigh the benefits in these patients. Uncomplicated UTIs occur in women who do not have anatomic or urologic abnormalities and do not have recurrent UTIs. All men with UTIs are considered complicated. The warning does not address long term use or fibromyalgia. Quinolones should be avoided in patients with myasthenia gravis. Fluoroquinolone antibiotics are associated with potentially permanentside effects of the tendons, joints, nerves and central nervous system. Signs and symptoms include joint or tendon pain, muscle weakness, tingling sensations, numbness, confusion, and hallucinations. The FDA does not comment on the use of fluoroquinolones prior to outpatient procedures or the routine use perioperatively; however, due to this warning, it may be prudent to consider switching to a different antibiotic on a case-by-case basis. The FDA warning does not address the length of fluoroquinolone therapy. There is no evidence that the presence of fibromyalgia has an impact on the safety or efficacy of fluoroquinolones.
FDA Drug Safety Communication: FDA updates warnings for oral and injectable fluoroquinolone antibiotics due to disabling side effects (July 26, 2016).

105. A 76-year-old man with diabetic neuropathy and normal renal function has cT2 urothelial carcinoma and multifocal CIS of the bladder. The next step is:
A. neoadjuvant M-VAC.
B. neoadjuvant gemcitabine and cisplatin.
C. neoadjuvant paclitaxel and carboplatin.
D. cisplatin plus XRT.
E. radical cystectomy.
ANSWER=E

In a recent working group of medical oncologists, the contraindications to cisplatin-based chemotherapy in the setting of urothelial carcinoma of the bladder included poor performance status, creatinine clearance < 60 mL/min, significant hearing loss, significant peripheral neuropathy, or a New York Heart Association Class 3 or higher heart failure. This patient is a poor candidate for cisplatin due to his peripheral neuropathy; therefore, neither M-VAC nor gemcitabine/cisplatin are appropriate. There is no data to support the use of non-cisplatin regimens, such as those using carboplatin, for neoadjuvant chemotherapy prior to cystectomy for bladder cancer. Multifocal CIS is a poor prognostic feature for chemotherapy/XRT in bladder cancer; therefore, this patient is best served by upfront radical cystectomy.

106. A 33-year-old man with cystinuria is treated with potassium citrate and alphamercaptopropionylglycine. Urinary cystine excretion has decreased and urinary pH is between 7 and 7.5. He continues to pass stones. The next step is:

A. add captopril.
B. increase potassium citrate.
C. increase dietary methionine.
D. sodium nitroprusside test.
E. stone analysis.

ANSWER=E

Patients with cystinuria may have other metabolic disturbances such as hypercalciuria, hypocitraturia, and hyperuricosuria, and form other types of stones such as calcium oxalate, calcium phosphate, uric acid, or mixed calculi; therefore, a stone analysis should be done to check for non-cystine stones, especially if the patient is on "appropriate" medical therapy. Comprehensive 24-hour urine testing should be done if such patients are forming non-cystine stones. Increasing the dose of potassium citrate may raise urinary pH to a level that would place this patient at risk for calcium phosphate stone formation. Captopril therapy reduces cystine excretion and would be a reasonable addition to this patient's current regimen if he is currently forming cystine stones. Dietary methionine is a precursor to cystine and should be restricted in patients with cystinuria. The patient has known cystinuria, so he does not require a repeat sodium nitroprusside test.

107. Evidence based medicine requires prioritization of:

A. etiologic/mechanistic literature.
B. studies with significant p values.
C. original single studies.
D. primary resources of evidence.
E. secondary resources of evidence.

ANSWER=E

Evidence based medicine focuses on information needed to guide the management of individuals or groups of patients. A review of etiologic literature focuses on background information, and, therefore, does not fall under the purview of evidence based medicine. Secondary resources, such as systematic reviews or metanalyses, are distinct from primary resources, such as original single studies, as they incorporate some degree of formal critical appraisal, validity, and clinical importance. Physicians should draw on secondary resources of evidence rather than individual studies to apply current best evidence to the care of their patients. Not all studies with a significant p-value will meet the criteria of being valid or clinically important.

108. Twelve weeks following right PCNL for a staghorn calculus, a 64-year-old man has persistent drainage from his flank despite ureteral stent and urethral catheterplacement for the past ten weeks. Estimated GFR is 80 mL/min/1.73 m2. Renal scan demonstrates 10% differential function in the right kidney. The next step is:

A. observation.
B. placement of a larger stent.
C. placement of a percutaneous nephrostomy tube.
D. open repair of fistula tract.
E. nephrectomy.

ANSWER=E

Renal fistula following percutaneous nephrostomy is most often due to distal obstruction and can usually be treated with a ureteral stent. Persistent fistula can occur in the setting of a chronic infection such as tuberculosis or xanthogranulomatous pyelonephritis. Changing the stent or putting a percutaneous nephrostomy in this poorly functioning kidney is unlikely to result in closure of the fistula after this long a period; therefore, nephrectomy is the best treatment.

109. Following a unilateral sacrospinous fixation, a 66-year-old woman has pain radiating down her right leg. It does not improve with conservative measures after one month. The nerve most likely involved is the:

A. obturator.
B. femoral.
C. sciatic.
D. pudendal.
E. inferior gluteal.

ANSWER=C

The sciatic nerve can be injured with deep placement of sacrospinous fixation sutures, leading to pain radiating down the leg. This may be more common with poor exposure of the ligament and blind placement of sutures. The obturator nerve would be too lateral to catch with sutures. The pudendal nerve can be injured but would cause mostly gluteal pain and not leg pain. The most common cause of gluteal pain after this surgery is injury to the inferior gluteal nerve, and it is typically transient. The femoral nerve would be difficult to injure in this surgery.

110. A 32-year-old man with multiple sclerosis underwent 200 U intravesical onabotulinumtoxinA injection two months ago. He reports improved but persistent urgency urinary incontinence despite CIC every four hours. Urinalysis is negative. Healso reports that one month ago he had a 75 U onabotulinumtoxinA injection for upper limb spasticity. The next step is:

A. inject 100 U onabotulinumtoxinA.
B. inject 200 U onabotulinumtoxinA.
C. inject 300 U onabotulinumtoxinA.
D. inject 100 U onabotulinumtoxinA in one month.
E. inject 200 U onabotulinumtoxinA in one month.

ANSWER=E

Currently, the total dose of onabotulinumtoxinA should not exceed 400 U in a three month period for all indications, including those outside the urinary tract (i.e., cosmetic, ophthalmologic, etc.). Since this man has had 275 U, he may be eligible for another 200 U dose in one month. If 200 U were not beneficial initially, a dose of 100 U is unlikely to help, while 300 U is not an approved dose for neurogenic detrusor overactivity. As repeated injections of onabotulinumtoxinA have been shown to be effective and safe, most practitioners would attempt additional injections prior to considering ileocystoplasty.

111. A 32-year-old woman has a blood pressure of 165/100 mm Hg on daily hydrochlorothiazide 25 mg. CT scan demonstrates a “string of beads” appearance of the left renal artery. The next step is:

A. add lisinopril.
B. renal function scan.
C. renal artery stenting.
D. percutaneous transluminal renal artery angioplasty.
E. renal artery revascularization.

ANSWER=A

This patient has medial fibroplasia which occurs predominantly in women 25 to 50 years of age. The lesion is typically described as a “string of beads” and involves the distal half of the main renal artery. The lesions are unlikely to progress to complete occlusion or result in loss of renal function; therefore, a renal function scan is not necessary. Hydrochlorothiazide 25 mg is an appropriate initial treatment and more aggressive medical therapy should now be initiated. Treatment does not usually require surgical intervention (i.e., stenting, angioplasty, or revascularization).

112. A 43-year-old man who desires a biologic child reports orgasm without antegrade emission for the past two years. Physical exam, testosterone, and FSH assays arenormal. The next step is:

A. post-ejaculatory urine.
B. transrectal ultrasound.
C. spine MRI scan.
D. HbA1c.
E. pseudoephedrine.
ANSWER=A

This condition, in which a patient has an orgasm without the expulsion of an antegrade ejaculate from the urethra, is called "aspermia," "anejaculation," or "dry ejaculation." The differential diagnosis includes failure of a seminal emission (no expulsion of fluid from the vas deferens, seminal vesicles, and prostate into the posterior urethra) and retrograde ejaculation (retrograde flow of semen from the posterior urethra into the bladder). In addition, very low volume ejaculates may be due to ejaculatory duct obstruction or aplasia of the vas deferens and seminal vesicles. In this patient, the likelihood of ejaculatory duct obstruction is low since there is no antegrade ejaculate at all, and transrectal ultrasound would not be an appropriate next step. Post-ejaculatory urinalysis differentiates between the diagnoses of failure of seminal emission and retrograde ejaculation. Patients are counseled to urinate into a specimen container after orgasm, and the urine is centrifuged and inspected for the presence of sperm. Although MRI scan of the spine and HbA1c may help clarify the etiology of the aspermia, post-ejaculatory urine is needed as the next step to determine if the patient has retrograde ejaculation or failure of seminal emission. Pseudoephedrine is a treatment for retrograde ejaculation, but a diagnosis is needed before offering this therapy. .

113. A 45-year-old woman develops Clostridium difficile colitis after antibiotic treatment for uncomplicated cystitis. She is febrile with a WBC of 20,000/mL. The appropriate treatment is:

A. oral metronidazole.
B. oral vancomycin.
C. oral metronidazole and vancomycin.
D. I.V. metronidazole.
E. rectal vancomycin.
ANSWER=B

Clostridium difficile is typically present in low numbers in the fecal flora; however, antibiotic therapy may eliminate the normal fecal flora and allow C. difficile to flourish. C.difficile produces toxins which cause diarrhea and mucosal sloughing (pseudomembranous enterocolitis). If left unchecked, the infection can progress to life-threatening toxic megacolon. The diagnosis of C. difficile colitis requires: 1) the presence of diarrhea or radiographic evidence of ileus, and 2) a positive stool test result for the C. difficile organism or its toxins, or colonoscopic/histologic findings of pseudomembranous colitis. Initial treatment of C. difficile colitis includes oral metronidazole or vancomycin. Mild cases can be treated with metronidazole, but patients with evidence of systemic symptoms should be treated with oral vancomycin. The patient in this scenario is febrile with an elevated WBC, and should, therefore, be treated with oral vancomycin. The use of concomitant metronidazole and vancomycin has not been shown to have efficacy above that seen with a single agent. Intravenous metronidazole does result in measurable drug levels in the colon. This treatment can be used in cases where oral medications are not possible but it is not recommended as monotherapy. Similarly, rectal vancomycin can be used in the setting of ileus or as adjunctive therapy, but it is not recommended as monotherapy as it may not reach the entire affected area. Other treatments such as probiotics or fecal transplantation are reserved for cases of recurrent C. difficile infections. Surgical treatment with partial or subtotal colectomy may be required if severe systemic symptoms or colon dilation (megacolon) develops.

114. An infant has penoscrotal hypospadias, bilateral non-palpable gonads, and a bifid scrotum. Laparoscopy reveals a left intra-abdominal testis and right streak gonad with a right oviduct and rudimentary uterus. The most likely diagnosis is:

A. pure gonadal dysgenesis.
B. mixed gonadal dysgenesis.
C. hernia uteri inguinale.
D. ovo-testicular disorder.
E. CAH.
ANSWER=B

The combination of a testis and a contralateral streak gonad and incomplete virilization defines mixed gonadal dysgenesis. The chromosomal status is usually that of a mosaic 45 XO/46 XY. The persistence of the Müllerian structures is due to the lack of production of Müllerian inhibiting substance (MIS). This is the second most common etiology of ambiguous genitalia following 46 XX DSD (female pseudohermaphroditism, i.e., CAH). Pure gonadal dysgenesis, defined by bilateral streak gonads, would have either 46 XX or 46 XY genotype. Hernia uteri inguinale (persistent Müllerian duct syndrome) is due to a failureof production of MIS or its receptor and has normal appearing testes in the abdomen with Fallopian tubes and uterus. Ovo-testicular disorder (true hermaphroditism) always has both ovarian and testicular tissue present. CAH does not have testes present.

115. During an open abdominal sacrocolpopexy, significant bleeding is noted at the time of sacral suture placement. In addition to fluid resuscitation, the next step is:

A. suture ligate sacral vessels.
B. sterile tack placement into sacrum.
C. close retroperitoneum and abandon operation.
D. angioembolization of pudendal vessels.
E. cross clamp iliac vessels.
ANSWER=B

Presacral bleeding is a serious event that one who performs sacrocolpopexy should be prepared for. The use of a sterile tack placed at the site of sacral sutures may need to be done. Suture ligation of the vessels that would usually cause this type of deep sacral bleeding is rarely successful. Closing the retroperitoneum would not help deep sacral bleeding. Angioembolization and iliac clamping would not help at this presacral venous level. This bleeding is seen more often if the sutures are placed too low in the sacrum (closer to S2/S3/S4).

116. A prospective, phase 3 randomized controlled trial has demonstrated that the addition of an anti-reflux mechanism to orthotopic urinary diversion:

A. reduces the rate of urinary infection.
B. reduces the rate of renal failure.
C. reduces the risk of urinary retention.
D. increases the overall late complication rate.
E. increases the rate of secondary surgeries.
ANSWER=E

A recent prospective, randomized phase 3 trial compared the long-term outcome of orthotopic neobladder with (T-pouch) or without (Studer pouch) an anti-reflux mechanism. The study found no

difference in the rates of overall late complications or moderate renal failure, but did demonstrate a higher rate of secondary diversion-related surgeries for those patients randomized to the T-pouch.

117. According to the AUA Guidelines, extracorporeal shock wave therapy (ESWT) is an option for the treatment of Peyronie's disease for:
A. penile pain.
B. penile curvature > 90 degrees.
C. penile curvature < 30 degrees.
D. hourglass deformity.
E. calcified penile plaques.
ANSWER=A
According to the AUA Guidelines on Peyronie's Disease, extracorporeal shock wave therapy (ESWT) can be offered for the treatment of penile pain in men with Peyronie's disease (Conditional Recommendation; Evidence Strength Grade B); however, there is limited use of ESWT in the United States as compared to other parts of the world, such as Europe and Asia. The AUA Peyronie's Guideline Panel noted that penile pain commonly resolves over time, and ESWT may pose a substantial patient burden. It was the opinion of the Panel that the overall utility of ESWT in the management of Peyronie's disease is low. In addition, the Panel recommended that clinicians should not use ESWT for the reduction of penile curvature or plaque size (Moderate Recommendation; Evidence Strength Grade B). Finally, ESWT is not indicated for the treatment of calcified penile plaques or hourglass deformities.

118. A 73-year-old man undergoes a radical cystoprostatectomy with creation of an ileal conduit for extensive CIS. At one year follow-up, a loopogram demonstrates reflux of contrast into markedly dilated upper tracts bilaterally and an elongated ileal conduit. The most likely etiology of this condition is:
A. parastomal hernia.
B. uretero-ileal anastomotic strictures.
C. anti-peristaltic ileal conduit.
D. tumor recurrence.
E. stomal stenosis.
ANSWER=E
The findings presented are most consistent with obstruction at the site of the abdominal stoma. Not only are the upper tracts dilated, but the ileal conduit is extended in length as well. Stomal stenosis is the most common cause of obstruction at this location. This is a more common finding in children, whose bowel is of somewhat smaller diameter than in adults. Parastomal hernias rarely result in obstruction of the loop. Ileal ischemia can result in a "pipe-stem" loop. This condition is associated with isolated strictured areas along the course of the conduit and, in general, the conduit is thin and non-compliant throughout its entire length. Antiperistaltic urinary conduits typically function normally. The fact thatthere is conduit dilation and reflux into dilated ureters argues against uretero-ileal anastomotic stricture or tumor recurrence as the cause.

119. A six-year-old girl with urge incontinence demonstrates squatting behavior to try to prevent leakage. The next step is:
A. pelvic floor biofeedback.
B. holding exercises and limiting of fluid intake.
C. laxatives and elimination of caffeine.
D. antimuscarinic medication.
E. posterior tibial nerve stimulation.
ANSWER=D
This child has classic symptoms of detrusor overactivity. All of the therapies have a role in the management of urinary incontinence. Antimuscarinics are the gold standard for detrusor overactivity. Often, a course of treatment over several months is effective until the bladder function matures and medication can be stopped. Pelvic floor biofeedback is helpful and can have some inhibitory effect on the overactive detrusor, but it can be timeconsuming, difficult to execute at this age, and is most helpful for children with dysfunctional elimination with elevated PVR volume. Holding exercises (delayed voiding) are typically not effective and can promote dysfunctional elimination. Limiting fluid intake is only helpful in children with an excessive fluid intake. Laxatives are helpful in constipated children, but this child's worsening symptoms dictate therapy more directed at bladder function. Caffeine elimination can also be helpful, but it is rarely an issue at this age. Posterior tibial nerve stimulation can also be effective, but its use is not approved in children and would be used in the adult population after a failure of pharmacologic therapy.

120. A 15-year-old girl with spina bifida has a sigmoid augmentation and appendicovesicostomy. She catheterizes five times a day and is continent. She has recurrent bladder calculi. The best option for reducing her risk of stone formation is daily bladder irrigation and:
A. thiazide diuretics.
B. prophylactic trimethoprim sulfamethoxazole.
C. potassium citrate.
D. intravesical gentamicin irrigation.
E. daily catheterization per urethra.
ANSWER=E
The most common cause of bladder calculi after augmentation cystoplasty is thought to be poor emptying and mucus formation. The majority of stones will be struvite, usually due to chronic bacteriuria. Oral and intravesical antibiotics may transiently lower the risk for bacteriuria but have not been shown to lower stone risk. Thiazide diuretics have no benefit with the types of stones generally formed in an augmented bladder. Hypocitraturia has been shown to be associated with bladder stones in some patients, but the impact of poor emptying and mucus are the more important risk factors. Supplemental potassium citrate will not decrease the incidence of bladder stones in this population. Patients with abdominal wall stomas have a risk of incomplete bladder emptying, with a higher risk of bladder stones compared to those that catheterize per urethra. The best option for this patient would be to add daily bladder irrigation and ensure complete bladder emptying by adding catheterization per urethra.

121. During laparoscopic left varicocelectomy, several bleeding vessels anterior to the psoas muscle are controlled with electrocautery. Postoperatively, the patient complains of numbness on his anterior thigh and scrotum. The nerve most likely injured is the:
A. iliohypogastric.
B. ilioinguinal.
C. posterior femoral cutaneous.
D. genitofemoral.
E. anterior obturator branch.
ANSWER=D
The genitofemoral nerve runs anterior to the psoas muscle and provides sensation to the anterior thigh (femoral branch), and the cremasteric muscles and anterior scrotum (genital branch). This is the most likely nerve to be injured during laparoscopic varicocelectomy, especially with cautery around the psoas muscle. The iliohypogastric nerve supplies innervation to the internal oblique and transversus muscles as well as sensation to the lower abdominal wall. The ilioinguinal nerve supplies sensation to the anterior scrotum but not to the thigh. The posterior femoral cutaneous nerve supplies sensation to the posterior scrotum, posterior thigh, and perineum. The obturator nerve supplies sensation to the inner medial thigh and motor supply to the adductors of the thigh.

122. A 58-year-old obese man is undergoing a planned ileal conduit after radical cystectomy. He has a thick abdominal wall and short mesentery that makes the creation of a properly protruding end ileal stoma difficult. The next step is:

A. move ostomy lateral to rectus fascia.
B. create loop ileostomy (Turnbull).
C. convert to transverse colon conduit.
D. create orthotopic ileal neobladder.
E. perform ureterosigmoidostomies.

ANSWER=B

Development of the stoma is perhaps the most important aspect in performing an ileal conduit because the stoma is the most likely site of complications and has a significant impact on a patient's quality of life. Proper maturation of the stoma and selection of the appropriate site for stomal placement are the most critical factors in determining the success of the ileal stoma and a properly fitting appliance. Ideally, the matured stoma should extend one to two inches above the skin edge for minimizing stomal stenosis, reducing skin problems, and optimizing proper appliance fit. Ideally a nipple or "rosebud" stoma is performed; however, obese patients have a thick abdominal wall and often a thick, short ileal mesentery. This makes the construction of an end ileal stoma extremely difficult, as in this patient. The loop ileostomy obviates some of these problems and is usually easier to perform than the ileal end stoma in the patient who is obese. The so-called Turnbull loop stoma results in a lesser incidence of stomal stenosis but a higher incidence of parastomal hernias. In obese patients with a short mesentery and thick abdominal wall, the loop ileostomy should be considered. All stomas should be placed through the belly of the rectus muscle. Moving the ostomy lateral to the rectus fascia should not be performed as it would significantly increase the risk of a parastomal hernia. Use of transverse colon is unlikely to overcome the difficulties of a thick abdominal wall and short mesentery in this patient, and is, therefore, not recommended. Although in some obese patients, an orthotopic neobladder may be easier to accomplish than the ileal conduit, working with the thickened bowel mesentery remains a challenge. The mesentery may prevent adequate descent of the reservoir into the pelvis compromising the ability to perform the neobladder to urethra anastomosis. Furthermore, since the preoperative plan was to perform an ileal conduit in this patient, primary efforts (including a Turnbull stoma) should be made to perform the ileal conduit if possible. Although the use of ureterosigmoidostomies may avert the need for bowel diversion and may be appropriate in very select patients, it possesses challenges related to fecal incontinence and to potential cancer development.Accordingly, in this patient or any obese patient, this should not represent an initial approach to urinary diversion. .

123. A 28-year-old man is hemodynamically stable after an MVC. CT scan reveals a 1 cm laceration into the right renal parenchyma with no urine extravasation. Two days after injury, he has worsening right flank pain. His hemoglobin is 14 g/dL. The next step is:

A. observation and pain control.
B. DMSA scan.
C. contrast CT scan.
D. renal ultrasound with Doppler.
E. retrograde pyelogram.

ANSWER=C Follow-up CT imaging (after 48 hours) is prudent in patients with deep renal injuries (American Association for the Study of Trauma [AAST] grade 4-5) because these injuries are prone to developing troublesome complications such as urinoma or hemorrhage. AAST grade 1-3 injuries have a low risk of complications and rarely require intervention; however, in this scenario, the patient has worsening flank pain which may indicate a potential complication. Routine follow-up CT imaging is not advised for uncomplicated AAST grade 1-3 injuries, because it is unlikely to change clinical management. Routine DMSA or other functional nuclear scans are also not advised. Benefits of forgoing routine follow-up imaging in low-grade renal injuries include simplicity in follow-up, decreased radiation exposure and I.V. contrast complications, patient convenience, and lower cost. Clinicians should not hesitate to perform follow-up imaging studies when a complication of renal injury is suspected. Periodic monitoring of blood pressure up to a year after the injury may uncover the rare instances of post-injury renovascular hypertension. Retrograde pyelogram or renal ultrasound with Doppler are not indicated at this time.

124. An 11-year-old boy with Lesch-Nyhan syndrome has a history of recurrent stones. He is stone-free after PCNL. Despite allopurinol and high fluid intake, he passes several stones over the next three months. Analysis shows xanthine stones. The next step is:

A. discontinue allopurinol.
B. increase allopurinol.
C. potassium citrate.
D. thiazide diuretic and low sodium diet.
E. evaluate for combined liver and renal transplant.

ANSWER=C

Stopping allopurinol could lead to high uric acid levels and gout. Increasing allopurinol could lead to hypoxanthine stones. Neither thiazide diuretic nor low sodium diet will affect uric acid stone formation, which is the predominant stone type in patients with Lesch- Nyhan syndrome. Liver and renal transplant are considered for primary hyperoxaluria. Alkalinization of urine, and decreasing the allopurinol dose would be most beneficial in this patient.

125. A 14-year-old boy with neurogenic bladder secondary to spina bifida is on CIC and maximal antimuscarinic therapy. Annual ultrasound demonstrates new bilateral hydronephrosis and videourodynamic study demonstrates increased bladder trabeculation, worsening bladder compliance, and a maximum cystometric capacity of 220 mL. Before bladder augmentation, he should undergo:

A. KUB.
B. EMG.
C. CT scan.
D. MRI scan of the spine.
E. intestinal transport studies.

ANSWER=D

The neurologic lesion in spina bifida is a dynamic disease process, especially in early infancy and at puberty when linear growth rate accelerates. When a change is noted on urodynamic assessment, radiologic investigation often reveals tethering of the spinal cord, a syringomyelia, increased intracranial pressure due to shunt malfunction, or partial herniation of the brainstem and cerebellum. Correction of a tethered cord may result in reversal of the bladder deterioration and prevent the need for a bladder augmentation. MRI scan is the test of choice for spinal cord imaging rather than CT scan. A KUB would demonstrate the bony defect associated with his history of spina bifida, but would not diagnose a tethered cord. Bowel dysfunction and constipation are common in patients with a history of meningomyelocele and may affect bladder function. Although the intestinal transport studies in this patient would likely be abnormal, the significant deterioration in this patient's bladder function should prompt exclusion of a tethered spinal cord. EMG would not be specific enough to diagnose the etiology of the changes.

126. A 38-year-old man with multiple pulmonary metastases undergoes cytoreductiveright radical nephrectomy. Final pathology demonstrates collecting duct RCC. The next step is:

A. interleukin-2.
B. bevacizumab.

C. sunitinib.
D. temsirolimus.
E. cisplatin-based chemotherapy.
ANSWER=E
The patient has advanced collecting duct carcinoma of the kidney. Collecting duct carcinomas are aggressive tumors often presenting in younger patients in their third, fourth, or fifth decade of life. Patients often present with locally-advanced or metastatic disease and overall prognosis is generally poor. Collecting duct carcinomas are resistant to conventional therapies for clear cell and papillary renal carcinomas (such as IL-2, sorafenib, sunitinib, bevacizumab, and temsirolimus), but some patients have shown a response to cisplatin- and gemcitabine-based therapies, perhaps due to their biologic similarity to urothelial carcinoma. A multicenter phase 2 trial demonstrated that gemcitabine combined with cisplatin or carboplatin provides a response rate of 26% and improved overall survival.

127. Women considering flibanserin (Addyi™) for the treatment of hypoactive sexual desire disorder should:
A. avoid alcohol consumption.
B. discontinue use of selective serotonin reuptake inhibitors.
C. discontinue use of digoxin.
D. avoid pregnancy.
E. avoid taking flibanserin if they are pre-menopausal.
ANSWER=A
In October of 2015, flibanserin was approved by the FDA for the treatment of hypoactive sexual desire disorder (HSDD) in women. Flibanserin is an agonist against the 5HT1A receptor and antagonist against the 5HT2A receptor. It also exerts dopaminergic and noradrenergic action. This medication has been shown to improve sexual desire in women. Alcohol consumption is absolutely contraindicated with this medication. All patients are required to sign a contract to avoid alcohol due to concerns of the impact on blood pressure. Flibanserin is currently only approved for pre-menopausal women with HSDD. There is no contraindication for the concomitant use of SSRIs (selective serotonin reuptake inhibitors) or digoxin. Finally, flibanserin is not contraindicated in pregnancy.

128. The minimum level of disinfection recommended for flexible cystoscopes is:
A. cleaning.
B. low-level disinfection.
C. medium-level disinfection.
D. high-level disinfection.
E. sterilization.
ANSWER=D
Sterilization involves the complete destruction of all microbial life, including bacterial spores. There are several types of sterilization processes available, including steam under pressure, ozone, ethylene oxide gas, hydrogen peroxide gas plasma (i.e., Sterrad, V-Pro), and liquid chemicals (i.e., Steris System 1). Disinfection is defined as thermal or chemical destruction of pathogenic and other types of microorganisms. Disinfection is less lethal than sterilization because it destroys most recognized pathogenic microorganisms but not necessarily all microbial forms (i.e., bacterial spores). High-level disinfection (HLD) has the ability to kill all microorganisms, except large numbers of bacterial spores. Spores are a defense mechanism of some bacteria and are resistant to high-level disinfectants unless they are exposed for an extended period; however, most high-level disinfectants have the ability to sterilize given sufficient exposure time. Intermediate-level disinfection inactivates M. tuberculosis, vegetative bacteria, most viruses, and most fungi, but it does not necessarily kill bacterial spores. Low-level disinfection can kill most bacteria, some viruses, and some fungi, but it cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores. High-level disinfection is the minimum level of disinfection recommended for cystoscopes.

129. A 60-year-old man undergoes inguinal orchiectomy with high ligation of the cord for an 8 cm solid mass of the right spermatic cord. Abdominal/pelvic CT scan is normal. Adjuvant XRT to the groin should be considered if the final pathology is:
A. liposarcoma.
B. rhabdomyosarcoma.
C. malignant fibrous histiocytoma.
D. angiosarcoma.
E. mesothelioma.
ANSWER=A
Paratesticular sarcomas are the most common genitourinary sarcomas in adults.Liposarcoma is the most common histologic subtype in adults, while embryonal rhabdomyosarcoma is most common in men younger than 30 years of age. Sarcomas should be managed with wide resection through an inguinal approach with excision of the testis and spermatic cord and high ligation. Additional therapy is indicated by histologic subtype and the presence or absence of regional or distant metastases. Liposarcomas rarely metastasize, but local recurrence is relatively common. As such, postoperative radiotherapy should be considered for paratesticular liposarcoma, especially in cases where the adequacy of local excision is in doubt (positive margins or large tumors). When metastatic evaluation is normal, patients with sarcomas other than liposarcoma (i.e., rhabdomyosarcoma, malignant fibrous histiocytoma, angiosarcoma) and mesothelioma should undergo RPLND, with postoperative chemotherapy if retroperitoneal lymph nodes are involved.

130. A 25-year-old man has a solitary painless ulcer on the glans penis. Rapid plasma reagin (RPR) testing of the ulcer is positive. The next step is:
A. VDRL testing.
B. fluorescent treponemal antibody absorbed (FTA-ABS) testing.
C. ceftriaxone.
D. benzathine penicillin G.
E. azithromycin.
ANSWER=B
The patient likely has primary syphilis; however, rapid plasma reagin (RPR) is not specific enough to initiate therapy. The sensitivity of non-treponemal tests such as VDRL and RPR is 86% and 78%, respectively, for syphilis; therefore, all positive non-treponemal tests (VDRL and RPR) should be confirmed with either T. palladium particle agglutination (TPPA) or fluorescent treponemal antibody absorbed (FTA-ABS) testing. Treatment for primary, secondary, or early latent syphilis should be IM benzathine penicillin G. Other parental preparations are not indicated. There is no evidence to support azithromycin as primary treatment for syphilis.

131. A false negative diuretic renogram can be due to:
A. renovascular hypertension.
B. dehydration.
C. poor renal function.
D. inadequate diuretic dosage.
E. a full bladder.
ANSWER=B
Diuretic renography is dependent on many variables. A false negative test most commonly results from inadequate fluid volume and, therefore, low urine flow at the time of the study, as the test is dependent on adequate urine production. Poor renal function, an inadequate dosage of administered diuretic, or a full bladder at the time of the study may lead to a false positive result indicative of obstruction.

132. On postoperative day one following ureteroscopy performed under spinal anesthesia, a 47-year-old man complains of low back pain radiating down both legs. The most likely diagnosis is:

A. cerebrospinal fluid leak.
B. epidural abscess.
C. epidural hematoma.
D. lidocaine toxicity.
E. positional neuropathy.
ANSWER=E

Lower extremity neuropathy can occur following a procedure performed in the lithotomy position due to prolonged procedure time, inadequate padding, or patient anatomic factors. Such neuropathies are characterized by paresthesia as well as pain. They will generally resolve with conservative management. A cerebrospinal fluid leak is characterized by a headache. Epidural abscess is a rare, infectious complication of spinal anesthesia, which will be associated with back and radicular pain but will present later. The epidural hematoma will also be associated with a sensory deficit in addition to radicular pain and is similarly rare. Lidocaine toxicity will yield systemic effects such as metallic taste, dizziness, and lightheadedness. .

133. A 51-year-old woman has an incidentally discovered 3 cm right adrenal mass on ultrasound. Metabolic evaluation is normal. The next step is:

A. no further evaluation.
B. repeat metabolic evaluation in three months.
C. repeat ultrasound in six months.
D. non-contrast CT scan.
E. gadolinium-enhanced MR washout study.
ANSWER=D

Adrenal incidentalomas are unsuspected adrenal masses greater than 1 cm in diameteridentified on imaging performed for seemingly unrelated causes. Ultrasonography is a suboptimal imaging modality for detecting and fully characterizing adrenal lesions. Nevertheless, many incidentalomas will be discovered on ultrasound imaging performed for unrelated reasons. A non-contrast CT scan is the first, perhaps single best, and most easily interpreted test for intracellular lipid and, therefore, can diagnose an adrenal adenoma in more than 70% of cases. Ninety-eight percent of lesions with an attenuation of 10 HU or less on non-contrast CT scan are adrenal adenomas, while less than 30% of adrenal adenomas are lipid-poor (also known as “atypical adenomas”) and have an attenuation of greater than 10 HU. If a lesion demonstrates an attenuation of > 10 HU on non-contrast CT scan, then additional radiologic evaluation can be performed including CT washout study to help discriminate lipid poor adenomas from other adrenal lesions. Gadolinium-enhanced MR washout studies do not exhibit the diagnostic strength of iodine-based CT washout studies, and are not commonly employed, especially as the initial study. When MRI scan is used, opposed-phase chemical shift MR imaging (i.e., T1- and T2- weighted imaging), to evaluate for intracellular lipid content, can help distinguish an adenoma from other adrenal lesions. Repeat biochemical evaluation in three months is not necessary, especially since the initial evaluation demonstrated the lesion to be biochemically inactive.

134. Citrate inhibits urinary calcium oxalate stone formation by:

A. binding calcium.
B. binding oxalate.
C. increasing magnesium.
D. decreasing water permeability in the collecting duct.
E. alkalinizing the urine.
ANSWER=A

Citrate is a urinary stone inhibitor and acts by binding to calcium, preventing the formation of calcium oxalate and calcium phosphate crystals. Citrate also inhibits the spontaneous nucleation of calcium oxalate. Hypocitraturia usually occurs in the absence of any concurrent symptoms or any known metabolic derangements. Calcium binds oxalate in the colon. Alkalinizing the urine will decrease uric acid and cystine stone formation, but does not impact formation of calcium oxalate stones. Citrate does not impact permeability of the collecting duct.

135. Two years after a partial penectomy for high grade pT2 squamous cell carcinoma ofthe penis, a 65-year-old man develops a 2 cm palpable lymph node in the right groin. Physical examination is otherwise unremarkable and metastatic work-up is negative. The next step is:

A. six weeks of antibiotic therapy.
B. excisional biopsy.
C. right superficial and deep inguinal lymphadenectomy.
D. right superficial and deep and left superficial inguinal lymphadenectomy.
E. bilateral superficial and deep inguinal lymphadenectomy.
ANSWER=C

The patient has developed a recurrence in the right groin after a period of observation. If the patient had undergone prophylactic groin dissections after his partial penectomy, he would have had bilateral groin dissections; however, with the delay, it is recommended to perform the dissection only on the side with obvious disease. There is no reason why he should have infected groin nodes since the penis has already been treated, so six weeks of antibiotics are unnecessary and would delay his treatment. The patient does not have any evidence of metastatic disease and the right inguinal lymph nodes are resectable, so there is no role for systemic chemotherapy at this point.

136. A 16-year-old girl has dysuria and urinary frequency. Urinalysis demonstrates 2 to 4 WBC/hpf and 0 to 5 RBC/hpf and no bacteriuria. Urine culture results are pending. The next step is:

A. renal and bladder ultrasound.
B. pelvic ultrasound.
C. VCUG.
D. Chlamydia and Neisseria gonorrhea testing.
E. empiric trimethoprim-sulfamethoxazole.
ANSWER=D

Sexually transmitted infection (STI) in females, with or without concomitant UTI, should be considered in the 16 to 24-year-old age group with these symptoms. The prevalence of Chlamydia is estimated at 13% to 26% and Neisseria gonorrhea 2% to 10% in this age group when presenting with dysuria and urinary frequency. According to some estimates, females within this age group presenting with these two symptoms are just as likely to have STI as UTI; therefore, Chlamydia and Neisseria gonorrhea testing should be the next step. A renal and bladder ultrasound, as well as a pelvic ultrasound and VCUG, are not indicated in this patient as a next step given her age and lack of prior UTIs. If the urinalysisis suggestive of a UTI, empiric trimethoprim-sulfamethoxazole could be started and adjusted based on the urine culture results.

137. Five days after an uneventful TURP, a 72-year-old man with metastatic prostate cancer is confused. He is afebrile and vital signs are normal. Serum Na is 118 mEq/L, K 4.0 mEq/L, Cl 80 mEq/L, and HCO3 is 30 mEq/L. Serum osmolality is 240 mOsm/L, and urine osmolality is 600 mOsm/L. Urinary Na is 30 mEq/L. The next step is:

A. I.V. NS.
B. I.V. 3% saline.
C. I.V. Ringer's lactate.
D. steroid and mineralocorticoid replacement.
E. fluid restriction and ad lib salt intake.

ANSWER=E
This patient has the syndrome of inappropriate secretion of antidiuretic hormone. The syndrome has a multitude of causes, one of which is prostate carcinoma. The patient is essentially water-intoxicated with hypo-osmolality and dilutional hyponatremia but will continue to inappropriately concentrate his urine. Urinary sodium excretion will also frequently continue. The treatment is fluid restriction, ad lib salt, and occasionally, diuretics. The other treatment modalities will not correct this issue.

138. Two weeks following radical hysterectomy, a 53-year-old woman has vaginal pain and continuous leakage of urine. Complete evaluation reveals an indurated, inflamed vaginal cuff, and a 6 mm vesicovaginal fistula. The next step is antibiotic therapy and:
A. placement of suprapubic tube.
B. fulguration of the fistula.
C. bilateral percutaneous nephrostomy tubes.
D. immediate fistula repair.
E. delayed fistula repair.
ANSWER=E
The timing of the repair of a vesicovaginal fistula depends on several factors including the results of a careful vaginal and cystoscopic exam. Vesicovaginal fistulae that occur following hysterectomy are located along the anterior vaginal wall at the level of the vaginal cuff. Pain is an uncommon finding with vesicovaginal fistula and in this patient most likely indicates a wound infection. A visual and manual assessment of inflammation surrounding the fistula is necessary because it will affect the timing of the repair. Significant inflammation, infection, or induration around the fistula may mitigate against immediate repair. In light of this patient's demonstration of a probable wound infection, immediate repair is not indicated. Catheter drainage will most likely not improve the situation and a fistula of this size is unlikely to heal spontaneously. Percutaneous nephrostomy tubes for proximal diversion are not indicated. A delayed repair is the best treatment option.

139. A 64-year-old man suffers a pelvic fracture and undergoes bilateral embolization of the internal pudendal arteries. Six months later, he has erectile dysfunction with a score of 5 on the International Index of Erectile Function (IIEF). The next step is:
A. daily tadalafil.
B. intraurethral alprostadil.
C. intracorporal injection with alprostadil.
D. penile revascularization.
E. placement of a penile prosthesis.
ANSWER=E
This patient has severe erectile dysfunction as measured by the International Index of Erectile Function (IIEF) on a scale from 5-25, where a score of > 21 demonstrates normal erectile function. His severe vascular injury would make him unlikely to be a responder to PDE5 inhibitors, intraurethral alprostadil or intracorporal injection, all of which would require a somewhat intact cavernosal artery. Patients do not need to fail less aggressive treatment options before consideration of placement of a penile prosthesis. While penile revascularization can be considered, his age, bilateral injury, and severity of erectile dysfunction make him a poor candidate. Placement of a penile prosthesis will be effective in restoring his erectile ability.

140. A 16-month-old girl with spina bifida has grade 4 unilateral VUR with moderate hydronephrosis. Despite prophylactic antibiotics, CIC, and oxybutynin, she has recurrent febrile UTIs with bilateral photopenic areas on DMSA scan. Urodynamics demonstrate a detrusor LPP of 65 cm H2O at 20 mL capacity. The next step is:
A. intradetrusor onabotulinumtoxinA.
B. subureteric injection of bulking agent.
C. cutaneous vesicostomy.
D. ureteral reimplantation.
E. augmentation cystoplasty and ureteral reimplantation.
ANSWER=C
This patient is failing medical management. OnabotulinumtoxinA may provide a temporary solution to a long-term management problem. Subureteric injections are not currently indicated in patients with neuropathic bladder and additionally would not address the underlying problem of bladder dysfunction. Open ureteral surgery may correct the reflux (with a relatively high failure rate in this scenario), but the patient would still have unaddressed significant problems with high LPP and poor bladder compliance and, because of this, it would not be a good option for this patient. Augmentation cystoplasty and ureteral reimplant would be a reasonable option for an older patient, but because of the patient's young age and failure of medical management, cutaneous vesicostomy would be the best option.

141. A 39-year-old man with a BMI of 35 has a 3 mm distal ureteral calculus on noncontrast CT scan. The stone was not visible on KUB. Two weeks after initial diagnosis, he remains symptomatic and has not reported passing his calculus. The next step is:
A. KUB with obliques.
B. low-dose non-contrast CT scan.
C. non-contrast CT scan.
D. cystoscopy and ureteral stent.
E. ureteroscopy.
ANSWER=C
A KUB is utilized in follow-up if the calculus was identified on CT scan, scout film, or KUB at the time of diagnosis unless the initial location of the stone was over the sacroiliac area. As such, KUB will not be helpful in this patient. Low-dose, non-contrast CT scan is not recommended in patients with a BMI over 30 due to a decrease in sensitivity. Intervention with either ureteral stent placement or ureteroscopy should not be performed until a repeat non-contrast CT scan confirms the presence of a persistent stone.

142. A 34-year-old morbidly obese man with a history of bilateral inguinal hernia repair has infertility and a left varicocele. The best surgical approach for varicocelectomy in him is:
A. laparoscopic.
B. retroperitoneal.
C. subinguinal.
D. scrotal.
E. radiographic occlusion.
ANSWER=C
The subinguinal varicocelectomy approach is preferred for any man with a history of previous inguinal surgery in order to safely and effectively expose the spermatic cord. Obesity is another indication for a subinguinal approach. A scrotal approach should not be used in any patient due to the high risk of concomitant testicular artery injury with resultant testicular atrophy or possible loss of the testicle. The laparoscopic and retroperitoneal approaches are more invasive than the subinguinal approach in this scenario, and both have more potential for serious morbidity. A radiographic approach has a higher rate of varicocele recurrence as compared to the other approaches. .

143. A 22-year-old man is diagnosed with metastatic germ cell tumor and a normal testicular examination. Scrotal ultrasound shows bilateral microlithiasis and a 3 mm hyperechoic lesion with coarse calcifications in the right testicle. After completion of chemotherapy, the next step is:
A. repeat scrotal ultrasound.

B. open bilateral testicular biopsy.
C. right partial orchiectomy.
D. right orchiectomy.
E. right orchiectomy and left testis biopsy.
ANSWER=D
In patients with metastatic germ cell tumor of the testicle and normal testicular examination, scrotal ultrasound should be performed to rule-out the presence of a small non-palpable scar or calcification which could indicate a "burned-out" primary testicular tumor. In this case, the 3 mm hyperechoic lesion is consistent with a coarse calcification representing a burned-out primary tumor. Germ cell tumors are among the most common neoplasms to undergo spontaneous regression, with seminoma being the most frequent histologic subtype. Radical orchiectomy should be performed in patients with evidence of intratesticular lesions (i.e., discrete nodule, stellate scar or coarse calcification) because ITGCN and residual teratoma are frequently present. Men with advanced testicular cancer with normal testicular examination and normal scrotal ultrasound are considered to have primary extragonadal germ cell tumor.

144. The indication for laparoscopic nephropexy is:
A. kidney descent of more than two vertebrae with postural changes.
B. presence of decreased blood flow with postural changes.
C. easy palpation of the kidney with postural changes.
D. pain with diuresis.
E. absence of obstruction.
ANSWER=B
Laparoscopy has made nephropexy for ptotic kidneys a relatively simple surgical procedure. Ptosis of the kidney is described as the descent of two or more vertebral lengths when the patient moves from lying down to standing; however, prior to performing nephropexy, strict adherence to surgical indications is necessary. A ptotic kidney should be pexed only if there are positional changes in blood flow, obstruction, and pain associated with the descent of the kidney.

145. A diabetic woman has postoperative labs revealing serum Na 129 mEq/L, K 4.1 mEq/L, glucose 390 mg/dL, and creatinine 1.5 mg/dL. She likely has:
A. SIADH.
B. decreased sodium intake.
C. salt wasting nephropathy.
D. normal total body free water.
E. secondary diabetes insipidus.
ANSWER=D
This diabetic patient is in poor control with an elevated serum glucose. Serum glucose elevation can lead to a spurious decrease in measured serum sodium levels. This pseudohyponatremia is also related to high level of protein or lipids in the blood and has to do with these molecules diminishing the amount of free water in a given volume of plasma, thus lowering measured sodium levels. What actually is important physiologically is the amount of sodium per volume free water. In cases of hyperglycemia, using the measured serum glucose (which is glucose level per volume of plasma) turns out to be a poor proxy for the level of glucose per volume of free water. For every 100 mg/dL of serum glucose, the measured serum sodium will decline by 1.6 mEq/L. That means that this patient with a serum glucose of 390 mg/dL has a true serum sodium level of about 137 mEq/L, which is normal. As serum sodium is principally a marker of the appropriateness of total body free water, this patient then has a normal and not increased amount of total body free water. Since serum sodium is actually normal once corrected, the other diagnoses areunlikely.

146. A 40-year-old woman who underwent bariatric surgery three years ago has symptomatic stone disease. Her preoperative evaluation reveals a hemoglobin of 9.0 g/dL. The most likely cause of her anemia is:
A. iron deficiency.
B. folate deficiency.
C. Vitamin B12 deficiency.
D. ascorbic acid deficiency.
E. chronic inflammation.
ANSWER=A
Iron deficiency is the most common cause of anemia following bariatric surgery, particularly in premenopausal women. Chronic inflammation associated with obesity and nutritional deficiencies of Vitamin B12, folic acid, and ascorbic acid are other, less common causes of anemia in this patient population.

147. A 75-year-old morbidly obese man with multiple co-morbidities has recurrent episodes of gross hematuria from his ileal conduit and has required repeat transfusions in the past. On inspection of the conduit, there is a large nest of dilated veins just within the stoma. The next step is:
A. continued observation.
B. evaluation for portal hypertension.
C. suture ligation of the veins.
D. revision of stoma.
E. creation of new ileal conduit.
ANSWER=B
This man most likely has large dilated veins due to portal hypertension (although at times these veins may not be obvious). There have been several reported instances of this, in which massive bleeding, such as in this patient, can occur. The most effective treatment is shunting of the portal system which can decrease the pressure and result in decompression of the veins with a resolution of the bleeding. Observation is incorrect as the patient is having significant bleeding. Although ligation of the visible veins may be required and work as a temporizing measure if the patient is actively bleeding, it is unlikely to be successful in the long-term. Although stomal revision or creation of a new ileal conduit would likely temporize the problem, the patient has multiple co-morbidities placing himat high surgical risk. In addition, without addressing the root cause of the dilated vessels, the problem may recur.

148. A 27-year-old woman with autosomal dominant polycystic kidney disease continues to experience fever and flank pain despite one week of amoxicillin for a pan-sensitive
E. coli UTI. Urine culture reveals no growth. The next step is:
A. ciprofloxacin.
B. gentamicin.
C. renal ultrasound.
D. CT scan.
E. retrograde pyelograms.
ANSWER=D
Upper tract UTIs are common in patients with polycystic kidney disease, especially women. These can be divided into parenchymal and cyst infections. The parenchymal infections respond better than cyst infections to treatment. Amoxicillin is adequate treatment for pan-sensitive E. coli, and the negative urine culture demonstrates its efficacy. Treatment with another antibiotic, such as gentamicin or ciprofloxacin, is not indicated. When the patient does not respond clinically to the antibiotic and the urine culture is negative, one must consider that the infection may be present in a non-communicating cyst. A CT or MRI scan are the diagnostic procedures of choice for renal abscesses, particularly in difficult cases such as polycystic kidney disease, since they provide excellent delineation of the tissue. Ultrasound imaging is compromised in polycystic kidney disease, and retrograde pyelography is not indicated in this situation. Percutaneous cyst aspiration is the treatment of choice, once the diagnosis is made.

149. A 21-year-old man with metastatic NSGCT has a 5 cm liver mass and a 3 cm retroperitoneal lymph node. Serum tumor markers are elevated and chest CT scan is normal. He undergoes four cycles of BEP chemotherapy and the serum tumor markers normalize and the retroperitoneal lymph node decreases to 2 mm. The liver mass decreases to 2.5 cm. The next step is:

A. observation.
B. salvage chemotherapy.
C. radiofrequency ablation of liver mass.
D. resection of liver mass.
E. resection of liver mass and RPLND.

ANSWER=D

This patient has a solitary residual non-retroperitoneal mass following induction chemotherapy for NSGCT. He has normalized his serum tumor markers and is an excellent candidate for surgical resection of this mass. The presence of non-pulmonary visceral metastases is a poor overall prognostic event; however, in this setting, durable cures have been documented in up to 40% of patients and are strongly linked to the histologic findings in the resected extra-retroperitoneal mass. The most likely findings at surgery in this patient are teratoma or necrosis. Simultaneous RPLND at the time of hepatic surgery is associated with a high incidence of chylous ascites, and in the setting of complete radiographic response to chemotherapy, would have a low therapeutic benefit with only a 4-8% likelihood of detecting residual tumor when all lymph nodes are < 8 mm.

150. A four-year-old girl has persistent dysuria and frequency. Bowel function is normal. Urinalysis reveals 6-8 RBC/hpf, 8 WBC/hpf, and is otherwise normal. Urine culture shows no growth. Renal and bladder ultrasound are normal. The next step is:

A. observation.
B. antibiotic prophylaxis.
C. urinary calcium:creatinine ratio.
D. VCUG.
E. cystoscopy.

ANSWER=C

Hypercalciuria in children can cause the formation of calcium-containing crystals in the urine leading to the bladder wall and trigonal irritation with resultant frequency and dysuria. Mild inflammation can also result in minimal RBCs and WBCs found in the urine. Children with these symptoms and urinalysis findings should be evaluated for hypercalciuria with a simple spot urinary calcium:creatinine ratio. For children over age two years, the normal ratio should be < 0.2. Observation would not be appropriate, as it is not only important to diagnose hypercalciuria as an explanation for the symptoms noted, but also to identify patients at risk for future urolithiasis. With no evidence of infection, antibiotics or VCUG are not required. Cystoscopy is not indicted for microscopic hematuria in a child with a normal renal and bladder ultrasound.

aua 2019

1. A 78-year-old malnourished woman with a history of prior pelvic radiation for cervical cancer has a radical cystectomy and ileal conduit with bilateral ureteral stents for urothelial cancer. Four days postoperatively, her urine output decreases with a marked increase in output from her abdominal drain. The next step is:

A. TPN.
B. placement of a catheter into the ileal stoma.
C. bilateral percutaneous nephrostomy tube placement.
D. revision of the ureteroileal anastomoses.
E. excision of the ileal conduit and replacement with a transverse colon conduit.
ANSWER=B

Leakage and fistula formation from a urinary diversion occur in 2 to 9% of patients; however, 20 to 60% of these fistulae close spontaneously. Conservative management can be safely attempted assuming the patient is not septic and that adequate drainage is maintained. Leakage could be from the ureteroileal anastomosis or from the butt end of the conduit. Bilateral ureteral stents are already in place, which should address any concerns about a ureteroileal anastomotic leak. Therefore, the best initial therapeutic maneuver in this patient is placement of a catheter into the ileal loop to facilitate drainage. While TPN is important in malnourished patients and should also be initiated, this would not address the immediate issue of the leak. If the stoma1 catheter failed to decrease the fistulous output, bilateral percutaneous nephrostomy tubes could be placed to divert the urinary stream. If this failed, surgical intervention would be required to address the problem.

2. A 24-year-old man has a transpubic urethroplasty in the extended lithotomy position. Postoperatively, he has anteromedial thigh paresthesia and right lower extremity weakness. The nerve most likely injured is the:

A. femoral.
B. obturator.
C. genitofemoral.
D. sciatic.
E. ilioinguinal.
ANSWER=A

Femoral neuropathy can occur after lithotomy procedures due to hip hyperabduction, or secondary to retractor injury with abdominal/pelvic procedures. The femoral nerve, the largest branch of the lumbar plexus, is formed within the psoas muscle from the fusion of the anterior divisions of L2-L4. It emerges between the psoas major and iliacus muscles just superior to the inguinal ligament and enters the thigh lateral to the external iliac artery. Sensory branches are the anterior and medial femoral cutaneous and long saphenous nerves. Motor supply is to the psoas, iliacus, quadriceps, pectineus, and sartorius muscles. The obturator nerve is a predominantly motor nerve providing adduction of the obturator internus muscle and also originates between L2-L4 nerve roots. The genitofemoral nerve has a genital branch providing motor supply to cremaster muscle and sensation to the anterior scrotum, and the femoral branch provides sensation to the anterior thigh. The sciatic nerve, derived from nerve roots L4-53 exits the sciatic foramen and provides sensory and motor innervation to the back of the thigh, leg, and foot. The ilioinguinal nerve is a branch of L1 and provides sensory innervation to the upper scrotum and base of the penis (males) or mons pubis and labia majora (females) and motor innervation to the internal oblique and transversus muscles.

3. A 52-year-old man with a history of lung cancer has a 5 cm adrenal mass with an attenuation of 45 Hounsfield units noted on follow-up non-contrast CT scan. Metastatic evaluation is otherwise negative. Metabolic evaluation is normal. The next step is:

A. repeat imaging and metabolic evaluation in six months.
B. MRI scan.
C. MlBG scan.
D. percutaneous needle biopsy.
E. adrenalectomy.
ANSWER=D

Given the size of a 5 cm adrenal mass and a history of lung cancer, observation alone is not acceptable. The CT findings are not consistent with an adenoma (Hounsfield units < lo), and as such, further evaluation is indicated. The primary utility of adrenal mass biopsy is to differentiate the presence of metastatic disease, especially in patients with a separate primary malignancy. In such cases, treatment options might depend on the pathology of the lesion, and, therefore, biopsy would be indicated. Importantly, a metabolic evaluation should be performed prior to biopsy, specifically to establish the absence of catecholamine production, which may be triggered by biopsy. When MRL is used in the. evaluation of an adrenal lesion, opposed phase chemical-shift MR imaging is employed to evaluate for intracellular lipid content and help distinguish an adenoma from other adrenal lesions. Nevertheless, MRI would not be reliably able to differentiate between adrenocortical carcinoma, which must be considered given the size of the lesion, and an adrenal metastasis, given the patient's history of lung cancer. Likewise, PET scan would not be able to distinguish between a metastasis and primary adrenocortical carcinoma and so would not be helpful at this point (though it could play a role if metastasis was established). MlBG is an analog of norepinephrine, and as such, MlBG scanning has been used in the evaluation of pheochromocytoma. In a patient with normal metabolic parameters, this scan would be unlikely to impact management, and, therefore, not recommended. To proceed immediately to an adrenalectomy in this setting of a previous primary malignancy, such as lung cancer, is inappropriate until tissue diagnosis is obtained as treatment options may depend upon pathology of the lesion.

4. A 45-year-old hypertensive man with a family history of renal failure is noted to have bilaterally enlarged cystic kidneys and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complains of marked dysuria. He is admitted with a presumptive diagnosis of pyelonephritis. Urine culture has been sent. Initial antibiotic therapy should be:

A. gentamicin.
B. ampicillin.
C. cephalexin.
D. ciprofloxacin.
E. nitrofurantoin.
ANSWER=D

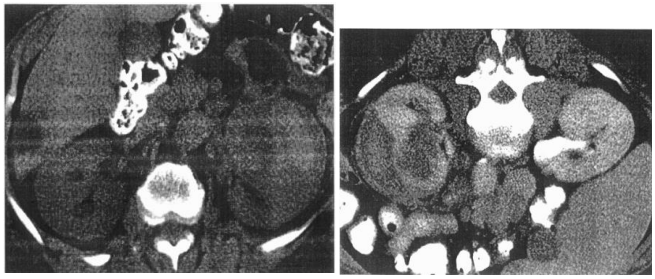
Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology, including renal cysts, calculi, infection, hemorrhage, and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, levofloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices.

5. Five months after continent cutaneous diversion, a 58-year-old woman has persistent low-grade fevers, malaise, and mild abdominal discomf6rt over the diversion. Her creatinine is 1.2 mgldL, and a CT scan shows mild bilateral hydronephrosis. Urine culture is positive for E. coli. After treating the infection, the next step is:

A. urine acidification.

B. program of mechanical pouch irrigation.
C. prophylactic antibiotic administration.
D. increase size of drainage catheter.
E. pouchogram to evaluate reflux.
ANSWER=B
It is not uncommon to develop pouchitis after construction of a continent urinary reservoir. This is especially true in the early postoperative period when mucous accumulation can be high. A simple program of mechanical irrigation can decrease the incidence of infections, though asymptomatic colonization may not decrease. Using a larger catheter may help urine drainage, but usually does not drain all the mucous. Prophylactic antibiotics or urine acidification are useful in patients who do not respond to simple measures and remain persistently infected. A pouchogram is not the initial step in evaluation of recurrent UTls in the early postoperative period after continent diversion.

6. A 57-year-old woman has a CT scan for severe left flank pain. Pre- and post-contrast CT scans are shown. The next step is:
A. repeat CT scan in three months.
B. percutaneous nephrostomy tube.
C. percutaneous drainage.
D. renal biopsy.
E. radical nephrectomy.



ANSWER=A
The image demonstrates a subcapsular hematoma. While subcapsular hematoma can occur in the absence of renal malignancy, the clinician should always be suspicious of an underlying tumor as a cause for the bleeding. In those cases in which an underlying tumor is not evident, delayed imaging is advised as it can allow evaluation for tumor after the hematoma is reabsorbed. A ureteral stent or percutaneous nephrostomy tube is not indicated given the absence of hydronephrosis on the image. Open or percutaneous drainage is not indicated given the risk of underlying tumor and the high likelihood of worsening the bleeding. There is insufficient evidence of a clear tumor to warrant either renal biopsy nor radical nephrectomy until a discernible mass is evident.

7. A debilitated 85-year-old woman with an ileal conduit has recurrent sepsis due to pyocystis despite weekly bladder irrigations with antibiotic solution. Cystoscopy demonstrates no evidence of malignancy. The next step is:
A. prophylactic oral antibiotics.
B. intravesical silver nitrate.
C. suprapubic cystostomy.
D. vaginal vesicostomy.
E. cystectomy.
ANSWER=D
Pyocystis occurs in approximately 20% of patients who undergo supravesical diversion. Patients typically have a malodorous discharge and may develop sepsis. If conservative measures, such as routine bladder irrigations fail, vaginal vesicostomy (creation of a large vesico-vaginal fistula), is an effective method of preventing pyocystis in women. This is an especially good alternative for an elderly or high risk patient. A stapling device can be used to quickly perform this operation. Absorbable staples should be used if the patient is sexually active. Prophylactic oral antibiotics will not be effective inpreventing pyocystis in a defunctionalized bladder. lntravesical silver nitrate will not prevent bladder secretions and is likely to be no more effective than routine bladder irrigations. A suprapubic tube will not facilitate bladder drainage, as well as a vaginal vesicostomy, and would be prone to infectious complications in a defunctionalized bladder. Cystectomy is an effective treatment for pyocystis and would likely be required if the patient was a male or if there was evidence of tumor on the cystoscopy. However, the morbidity of this procedure in this elderly patient is high.

8. A 75-year-old-man has severe bleeding from radiation cystitis requiring transfusion. Cystogram reveals no reflux. Previous therapeutic measures have failed including fulguration, clot evacuation, and irrigations with silver nitrate and 1 % alum. The next step is:
A. ileal loop urinary diversion.
B. instillation of 10% formalin.
C. instillation of 5% formaldehyde.
D. instillation of 2% formalin.
E. internal iliac artery embolization.
ANSWER=D
Formaldehyde is a 37% solution of formaldehyde gas dissolved in water and should not be used intravesically. Formalin solution is made up of 1-10% formaldehyde diluted with normal saline and has been given in bladder instillations to control hemorrhage from advanced bladder tumors or radiation cystitis. Formalin solution is exceedingly irritating to the bladder, and thus, requires general or regional anesthesia. Because a 10% formalin solution may cause fibrosis and obstruction of the ureteral orifices, formalin instillation should begin with a 1% solution and be repeated with a 5% and then a 10% solution, if necessary. Many begin with a 1-2% solution if other measures (i.e., silver nitrate and 1 % alum) have failed. A cystogram should be performed before instillation to rule-out vesicoureteral reflux. If reflux is present, Fogarty catheters should be passed up both ureters, and the patient should be tilted into the head-up position to protect the upper tracts from the toxic effects of formalin. Selective internal iliac arterial embolization is more invasive and should be reserved for patients that fail formalin instillation. Ileal loop urinary diversion is the final option for patients with intractable hemorrhage and a nonfunctional bladder.

9. A 38-year-old azoospermic man with secondary infertility has an ejaculate volume of 0.3 mL. Post-ejaculate urine contains no sperm. Serum testosterone and FSH are normal, both vasa are palpable, and testicular volume is normal. TRUS reveals a normal prostate, ejaculatory ducts, and dilated seminal vesicles. The next step is:
A. ejaculatory duct cannulation.
B. testis biopsy.
C. vasography.
D. seminal vesicle aspiration.
E. renal ultrasound.
ANSWER=D
The differential diagnosis of low ejaculate volume azoospermia is ejaculatory duct obstruction, hypogonadism, vasal agenesis, ejaculatory failure, and testicular failure. Hypogonadism was excluded by a normal testosterone level and the patient has palpable vasa. Retrograde ejaculation is not present as sperm were not found in the post-ejaculate urine. This patient has either testicular failure or an obstruction of the ejaculatory ducts. Seminal vesicle aspiration under TRUS guidance will reveal numerous sperm if obstruction is present and is the least invasive method to diagnose this treatable lesion. While vasography would reveal a distal obstruction, it is more invasive than TRUS. Ejaculatory duct cannulation is difficult and, thus may not diagnose the problem. Finally, renal ultrasound is indicated in the work-up of patients with congenital unilateral or bilateral absence of the vas deferens, which this patient does not have based on his examination.

10. After ligation of the adrenal vein during removal of a right adrenal pheochromocytoma, there is a precipitous fall in blood pressure. The next step is:
A. blood transfusion.
B. epinephrine.
C. norepinephrine.
D. dopamine.
E. saline bolus.
ANSWER=E
Preoperative alpha-blockade is recommended for patients with pheochromocytoma in an attempt to stabilize the patient's hemodynamic status and expand their intravascular volume. Beta-blockers can also be used preoperatively to decrease the risk of arrhythmias. When the blood supply of the tumor has been curtailed, a fall in circulatory catecholamine levels may result in hypotension. Volume replacement with saline is the initial treatment of choice, with careful cardiovascular monitoring. In the absence of bleeding, transfusion is not indicated. Vasopressors are rarely required and may be discontinued once vascular volume approaches normal.

11. The safest chemotherapeutic agent for use in patients who have received extensive prior bone marrow radiation is:
A. cisplatin.
B. methotrexate.
C. vinblastine.
D. bleomycin.
E. Adriarnycin@.
ANSWER=D
The primary toxicity of bleomycin is pulmonary fibrosis and it has only mild myelosuppressive effects at high doses. All of the other agents listed can have significant bone marrow toxicity. Although cisplatin is most commonly associated with renal toxicity, it can have myelosuppressive side effects as well.

12. The inferior mesenteric artery is ligated during a RPLND for testis cancer. Blood supply to the sigmoid colon is now derived from which artery:
A. right colic.
B. superior hemorrhoidal.
C. middle hemorrhoidal.
D. sigmoid.
E. middle sacral.
ANSWER=C
The main arterial supply of the sigmoid colon is from the sigmoid and superior hemorrhoidal branches of the inferior mesenteric artery (IMA). The major collateral vessels are the middle and inferior hemorrhoidal arteries which arise from the internal iliac artery. They anastomose freely with the superior hemorrhoidal branches. It is. distributed to the rectum, anastornosing with the inferior vesical artery, superior rectal artery, and inferior rectal artery. The right colic artery arises from the superior mesenteric artery and does not have collaterals to the distal colon. The superiorhemorrhoidal arteries and sigmoid arteries are continuations of the IMA and are filled retrograde when the IMA is ligated. The middle sacral artery arises from the posterior aspect of the aorta and gives some blood supply to the rectum.

13. A newborn girl has an abdominal mass. An interlabial bulging mass is also noted. Ultrasound shows a cystic mass anterior to the rectum that does -not change with bladder catheterization. The most likely diagnosis is:
A. imperforate hymen.
B. rhabdomyosarcoma.
C. sacrococcygeal teratoma.
D. Gartner's duct cyst.
E. prolapsed ureterocele.
ANSWER=A
This patient has an imperforate hymen causing obstruction of the vagina. The cervical glands produce mucous in response to maternal hormones. The presentation is that of an I interlabial mass. Catheterization of the bladder does not decompress the mass. Ultrasound will confirm the cystic nature of the lesion and its location excludes sacrococcygeal teratoma. Rhabdomyosarcoma would be uncommon in this age group and would be solid. Ureterocele can present as an interlabial mass, but the ureterocele is intravesical rather I than between the bladder and the rectum. Gartner's duct cysts usually are found in the wall of the vagina. They can occur with renal anomalies (ectopic ureter or renal hypoplasia), but rarely present with symptoms of abdominal and/or vaginal mass.

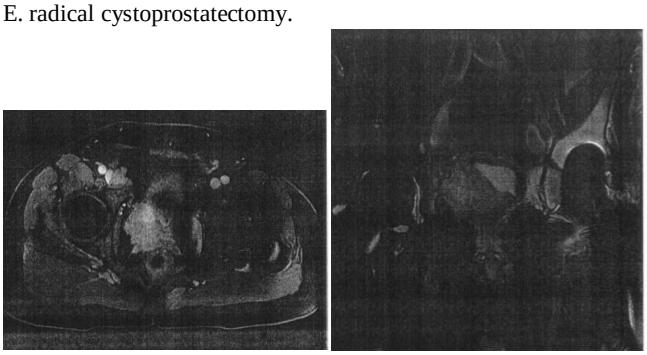
14. Calcium oxalate calculi appear on MRI scan as:
A. high intensity TI-weighted image.
B. low intensity T2-weighted image.
C. low core intensity image.
D. poorly visualized image.
E. bright bone-like signal image.
ANSWER=D
MRI scan is unable to reliably identify urinary calculi since it does not visualize calcium. Therefore, stones are noted as filling defects overlying the high signal intensity of urine on a T2-weighted image. Stones are not visualized on TI-weighted images. Low core intensity and bright bone-like signal images are not standard findings or terminology for stone disease on MRI scans.

15. A two-month-old boy has a 4 cm right adrenal mass. Biopsy reveals neuroblastoma. There are metastases to the skin, liver, and bone marrow. Skeletal survey is negative. The next step is:
A. observation.
B. flank XRT.
C. multi-agent chemotherapy.
D. right adrenalectomy.
E. total body XRT and bone marrow transplant.
ANSWER=A
This infant has stage 4-5 neuroblastoma. This can include involvement of skin, liver, and bone marrow without bone metastases on skeletal survey. Observation therapy alone in children less than one year of age is usually sufficient and metastases regress spontaneously, and therefore, do not require any of the other options at this time. In older children, or in cases where metastases do not regress, chemotherapy is used. In this patient, there is no role for XRT or adrenalectomy.

16. The antibiotic which can be used in a patient with a history of an anaphylactic reaction to penicillin is:
A. ceftriaxone.
B. imipenem.
C. ceftazidime.
D. aztreonam.
E. ampicillin.
ANSWER=D
Carbapenems and cephalosporins are immunogenically similar in their ability to effect hypersensitivity reactions in patients who are allergic to penicillin. However, cephalosporins can usually be safely administered to patients with mild allergic reactions to penicillin. Ampicillin is immunogenically very similar to penicillin. These reactions are not seen in patients given aztreonam, although allergic cross-reactivity can occur due to reactivity to its side chain component, which is unrelated to penicillin hypersensitivity.

17. A healthy 60-year-old man is diagnosed with Gleason 9 (4+5) prostate cancer. CT abdomen and bone scan are negative. MRI is shown. The next step is:
A. fluciclovine F-18 PET (AxuminTM).

B. leuprolide- acetate and docetaxel.
C. leuprolide acetate and XRT.
D. radical prostatectomy.
E. radical cystoprostatectomy.



ANSWER=C

The patient has evidence of locally advanced (cT4) and N1 prostate cancer based on evidence of bladder invasion and a right lymph node on the MRI scan. However, he does not appear to have metastatic disease (MO). Axumin PET is FDA approved for evaluation of recurrence after treatment and would not be indicated for staging at the time of diagnosis. Although some studies may suggest that the combination of androgen deprivation therapy (ADT) and chemotherapy is beneficial in NlMO patients, the evidence currently only supports the benefit of ADT and docetaxel in metastatic, hormone- sensitive prostate cancer. The best treatment would be XRT combined with long-term ADT (2-3 years). Even with the significant potential for disease recurrence, treatment of the primary tumor within the prostate may reduce local complications; however, neither radical prostatectomy nor cystoprostatectomy would be indicated.

18. In girls who have suffered sexual abuse, the most frequent finding on physical examination is:

A. no abnormality.
B. tear of the labia minora.
C. bruisingoftheinnerthigh.
D. laxity of the anal sphincter.
E. enlargement of the hymenal opening.

ANSWER=A

Sexual abuse in children will often leave no physical findings. All of the choices are findings consistent with sexual abuse, but a normal examination is the usual finding. Consequently, one cannot rule-out sexual abuse on the basis of the physical examination alone. A complete history, knowledge of associated risk factors, and a thorough physical examination, combined with a high index of suspicion, may lead to the diagnosis.

19. A 26-year-old man has had four ureteroscopic stone extractions over the past three years. All stones were pure calcium phosphate (brushite). He denies prior UTIs. The most likely etiology for his stone disease is:

A. hyperuricosuria.
B. resorptive hypercalciuria.
C. phosphate renal leak.
D. renal hypercalciuria.
E. excess meat consumption.

ANSWER=B

Calcium phosphate stones can be classified as brushite (pH 6.6). Recurrent calcium phosphate (100%) brushite stones are unusual and should arouse suspicion for primary hyperparathyroidism (resorptive hypercalciuria). Serum parathyroid and calcium levels should be evaluated. Hyperuricosuric calcium nephrolithiasis is most commonly due to excessive purine intake and can be successfully treated with dietary manipulation. Excess meat consumption is associated with hyperuricosuria. Excessive uric acid production from catabolic states or other metabolic factors can be successfully treated with allopurinol or potassium citrate. Phosphate renal leak hypercalciuria is associated with elevated Vitamin D levels and calcium oxalate or mixed calcium oxalate and calcium phosphate calculi. Renal hypercalciuria is associated with calcium oxalate stones and is successfully treated with hydrochlorothiazides over the long-term.

20. A 55-year-old man has mild right flank pain eight weeks after an aorto-iliac vascular graft. Serum creatinine is 1.4 mg/dL, WBC 12,00O/cu mm, and urine culture is sterile. Renal ultrasound shows moderate right hydronephrosis, and CT scan demonstrates the graft is posterior to the right ureter. The next step is:

A. percutaneous nephrostomy.
B. oral steroid therapy.
C. transureteroureterostomy.
D. nephrectomy.
E. ureterolysis.

ANSWER=B

Hydronephrosis occurs in 5% of ureters at risk following reconstructive vascular surgery. The cause of ureteral obstruction is anterior graft placement (30%) and localized retroperitoneal fibrosis (70%). Grafts should be placed posterior to the ureter, as in this case. Early ureteral obstruction due to secondary retroperitoneal fibrosis occurring within six months of surgery can resolve with a four-week course of oral steroid therapy. Percutaneous nephrostomy is not indicated with only mild flank pain and a normal serum creatinine. Transureteroureterostomy should be reserved for major loss of ureteral length and nephrectomy . . is not i.ndicated. Ureterolysis would. be reserved for failure of more conservative measures.

21. While performing a videourodynamic study in a three-year-old child, the recommended rate of bladder filling is:

A: 10 ml/min.
B: 20 ml/min.
C: 30 ml/min.
D: 40 ml/min.
E: 50 ml/min.

Answer= A.

The rate of bladder filling (ml/min) is calculated by determining the child's predicted bladder capacity (average bladder capacity in ml = age in years + 2 X 30) and dividing the result by 10. In this case, (3+2) X 30 = 150/10 = 15 ml/min or less. It is important not to fill the bladder too fast as it may result in falsely low levels of detrusor compliance and may produce artifactual detrusor contractions. Filling at 10 percent per minute of the calculated bladder capacity (or less) avoids these problems.

22. A 40-year-old woman has a bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Her replacement therapy consists of cortisone and fludrocortisone. Three years later, she complains of visual disturbances and has skin hyperpigmentation. The most likely explanation is:

A. inadequate cortisone replacement.
B. pituitary adenoma.
C. excessive cortisone replacement.
D. ectopic ACTH production.
E. ectopic melanocyte-stimulating hormone secretion.

ANSWER=B

After bilateral adrenalectomy, reports have noted that between 8-29% of patients develop Nelson's syndrome, a condition of increased ACTH secretion due to pituitary adenoma growth. While the pathophysiology remains in some debate, a lack of negative feedback from cortisol after bilateral adrenalectomy and subsequent increase in CRH (corticotropin releasing hormone) production has been hypothesized to be responsible. Local symptoms from tumor growth include headaches and visual field changes, while

hyperpigmentation accompanies the increased ACTH levels. Diagnosis can be established with an MRI scan of the brain, measurement of elevated ACTH levels, as well as clinical manifestations. Treatments include radiation (either prophylactic or therapeutic), surgery (transsphenoidal), or pharmacotherapy (octreotide, temozolomide, pasireotide). Prophylactic radiation at the time of bilateral adrenalectomy may prevent the development of Nelson's syndrome, but i t s routine use remains controversial. The ACTH overproduction is not ectopic, but from the pituitary. Likewise, the clinical symptom complex in this setting is not likely to result from either excessive or inadequate hormone replacement. Indeed, excessive cortisone replacement would result in a Cushingoid appearance (purple striae, buffalo hump, central obesity).

23. In women with invasive carcinoma of the proximal urethra; the primary lymphatic nodes for metastatic disease are the:

A. superficial inguinal.
B. deep inguinal.
C. external iliac.
D. hypogastric.
E. obturator.
ANSWER=C

Urethral carcinoma is more common in women, and may involve either the distal or proximal urethra. The location of the primary tumor will dictate the primary landing zone for lymphatic spread. The distal urethra and labia drain to the superficial and then deep inguinal nodes, while the proximal urethra drains primarily to the external iliac and then secondarily to the hypogastric and obturator lymph nodes.

24. A 24-year-old woman had an ileocystoplasty for neurogenic bladder four years ago. During an emergency cesarean section, the vascular pedicle to the cystoplasty segment is divided. The next step is:

A. revascularization of the pedicle.
B. excise ileal patch; immediate ileal augmentation.
C. excise ileal patch; delayed sigmoid augmentation.
D. place suprapubic tube and drain.
E. observation with follow-up urodynamics.
ANSWER=E

Experimental studies have shown that the augmented bowel segment receives collateral blood flow from the native bladder. Interruption of the vascular pedicle may cause some decrease in the size of the augmented segment, but the augment segment remains intact. lntraoperative assessment of blood flow to the augmented segment immediately after ligation of the pedicle demonstrates decreased perfusion. However, perfusion returns to normal after eight weeks. Observation of the patient with repeat urodynamic studies is indicated. If this shows a significant decrease in f unctional capacity, consideration can be given to revision of the ileocystoplasty. Primary revision with sigmoid in this patient would be ill-advised without a bowel prep. There should be no need for a suprapubic tube as extravasation is not likely. Immediate re-augmentation would not be indicated. Subsequent demonstration of a reduction in capacity or compliance would be an indication for re-augmentation.

25. The most common metabolic disturbance that occurs in a patient with an ileal conduit is:

A. hyperkalemic, hyperchloremic, metabolic acidosis.
B. hyponatremic, hypochloremic, metabolic acidosis.
C. hypochloremic, hypokalemic, metabolic alkalosis.
D. hypokalemic, hyperchloremic, metabolic acidosis.
E. hyponatremic, hypochloremic, metabolic alkalosis.
ANSWER=D

In the setting of an ileal conduit urinary diversion, ammonium absorption occurs with chloride in exchange for hydrogen and bicarbonate ions, and may be accompanied by renal potassium wasting. This results in a hypokalemic, hyperchloremic metabolic acidosis. Hyponatremic, hypochloremic, hyperkalemic metabolic acidosis occurs with the use of jejunum due to sodium chloride loss with increased reabsorption of potassium andhydrogen ions. Use of stomach may lead to hypochloremic, hypokalemic metabolic-alkalosis due to hydrogen and chloride loss with renal oversecretion of potassium to compensate for proton loss.

26. Renovascular hypertension that is likely to respond to angiographic or surgical intervention is characterized by:

A. marked elevation in plasma renin values.
B. elevation of renal vein over inferior vena caval concentrations of renin by at least 25%.
C. elevation of ipsilateral renal vein renin by at least 50% over peripheral and contralateral renal vein renin.
D. elevation of ipsilateral renal vein renin by 50% over peripheral plasma renin, and by 25% over the contralateral renal vein renin.
E. marked elevation of ipsilateral and contralateral renal vein renin as well as peripheral plasma renin.
ANSWER=C

The response of renovascular hypertension to surgery or angiographic intervention depends upon the type of lesion and its location. Renin is a mediating substance for renovascular hypertension and a search for its origin is helpful. Significantly elevated renin from one renal vein and not the other leads to localization of a candidate for intervention. Further evaluation by imaging and provocative studies involving ACE inhibitors may also confirm the diagnosis and help decide whether surgical treatment is necessary.

27. A 27-year-old woman at 30 weeks of gestation has gross hematuria. Ultrasound shows a normal fetus and a maternal bladder lesion. Cystoscopy reveals a 3 cm pedunculated papillary lesion. The remainder of the bladder is normal. The next step is:

A. immediate transurethral resection.
B. early delivery followed by transurethral resection.
C. transurethral resection after term delivery.
D. remove tumor with cup biopsy forceps at initial cystoscopy.
E. immediate tumor ablation with Nd:YAG laser.
ANSWER=C

Hematuria during pregnancy may be mistaken for anteparturn bleeding and is most commonly caused by an infection; however, other causes must be considered. Urothelial carcinoma of the bladder during pregnancy is uncommon but can present as hematuria. Ultrasound may detect bladder tumors incidentally or as part of a hematuria evaluation Although ultrasound is a good screening technique, it is still not reliable and cystoscopy should be considered in all pregnant patients with documented gross hematuria or persistent microscopic hematuria. Bladder tumors in this age group almost always are low- ,grade and non-invasive, which is consistent with the findings on cystoscopy in this case. As such, these low-grade tumors do not require urgent removal. Therefore, immediate biopsy, transurethral resection, laser ablation, or early delivery for subsequent tumor resection are not indicated. In fact, immediate resection under anesthesia or cold cup removal in the office has the potential to induce uterine contractions and precipitate premature labor. The tumor resection should be delayed and performed in the standard fashion after a term delivery.

28. A.31-year-old woman has acute cystitis. The most appropriate treatment is three days of:

A. fosfomycin.
B. nitrofurantoin.
C. ampicillin.
D. ciprofloxacin.

E. trimethoprimlsulfamethoxazole.
ANSWER=E
Practice guidelines from the lnfectious Disease Society of America suggest that three days of antibiotics is optimal therapy for acute uncomplicated cystitis in women, except for nitrofurantoin which requires five days of therapy to be equal to other antibiotics. TMPSMX is the recommended agent since approximately 80% of E. coli are sensitive to this regimen. Fosfomycin (Monurol) may also be used but is single dose therapy. Beta-lactams are less effective in community-acquired organisms with resistance as high as 50% in some communities. Oral fluoroquinolones are not recommended for the treatment of uncomplicated cystitis in women due to the risk of adverse events with these agents.

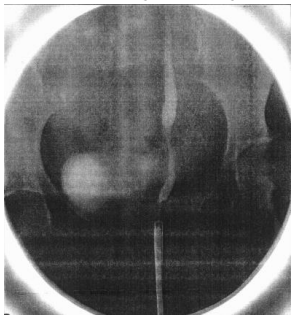
29. A 67-year-old man with a clinical stage TZbNOMO Gleason 7 (3+4) prostate cancer with a PSA of 7.8 nglmL is treated with 78 Gy external beam XRT. His PSA nadirs to 0.8 ng/mL six months after therapy. Six months later, he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/mL. The most likely explanation for the elevated PSA level is:
A. prostatic infarct.
B. persistent prostate cancer.
C. PSA bounce effect.
D. radiation-induced prostatitis.
E. insufficient period of observation after therapy.
ANSWER=B
A marked increase in serum PSA after a nadir within six months of external beam XRT is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation-induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks. A "bounce" can be defined as a rise greater than 0.1 to 0.5 ng/mL followed by a durable decline and is especially common after brachytherapy, where it is reported to occur in 24% to 35% of men. These can start any time from 9 to 30 months after brachytherapy, with the majority of patients having a cumulative PSA rise of not more than 2 to 3 ng1mL. Prostatic infarct is rare following radiation therapy for prostate cancer and would likely be associated with a significantly elevated PSA. Six months after treatment with XRT is a sufficient time to assess for response. The ASTRO consensus panel defined biochemical failure as three consecutive rises in PSA level after a nadir. The Phoenix definition of biochemical recurrence as a rise of greater than 2 ng/mL above the PSA nadir is a better predictor of clinical outcomes. It is important to remember that PSA failure is not equivalent to clinical failure.

30. A ten-month-old boy with a vesicostomy for posterior urethral valves develops increasing bilateral hydronephrosis and a full bladder on ultrasound. The next step IS:
A. diuretic renogram.
B. enterocystoplasty.
C. calibrate vesicostomy.
D. VCUG.
E. bilateral cutaneous ureterostomy.
ANSWER=C
The most common complications of vesicostomy are bladder prolapse and stenosis. Late development of increasing hydronephrosis and a full bladder after vesicostomy would suggest the bladder is not draining well due to stenosis of the vesicostomy. If the vesicostomy is adequate, then consideration of upper tract obstruction would be necessary. Reflux and secondary ureterovesical obstruction may be diagnosed with a VCUG or renogram, respectively, but calibration of the stoma is the first step. While the child may eventually require an enterocystoplasty, this is not the next step. Bilateral cutaneous ureterostomy are rarely indicated as the secondary hydroureteronephrosis is usually secondary to a non-compliant bladder.

31. A 24-year-old man is hit in the scrotum with a baseball. Two hours later, physical exam reveals a very firm, smooth, and painful testicle. Ultrasound shows a heterogeneous avascular intratesticular mass. The next step is:
A. serial physical exams and ultrasound.
B. needle aspiration of the mass.
C. testicular exploration.
D. scrota1 orchiectomy.
E. inguinal orchiectomy.
ANSWER=C
Ultrasound findings suggestive of testicular rupture include heterogenous echo pattern of the parenchyma and disruption of the tunica albuginea. There is wide variability in the false positive and false negative rate, and the consequences of a missed injury are significant; therefore, testicular exploration is the rule. Exceptions include small, minimally symptomatic hematomas, but these patients should be observed with serial exams. Forty percent of patients managed non-operatively for intratesticular hematoma develop infection or infarction. Drainage of the hematoma may salvage the testicle and reduce recovery time. The mechanism of injury and the fact that the mass is avascular makes a tumor unlikely.

32. A patient elects SWL for treatment of a symptomatic, partially obstructing radiopaque 7 mm proximal ureteral calculus. The next step is:
A. push back of the stone into the renal pelvis prior to SWL.
B. placement of a stent alongside the stone prior to SWL.
C. placement of a nephrostomy tube prior to SWL.
D. in-situ SWL treatment.
E. placement of a ureteral catheter to the level of the stone.
ANSWER=D
Although it was initially thought that SWL was more successful after manipulation of ureteral stones into the kidney or placement of a stent alongside the stone to produce an "expansion chamber" that facilitates SWL fragmentation, subsequent studies showed no difference in stone-free rates in patients treated with or without stone or stent I manipulation. Indeed, the AUA Guidelines Panel concluded that there is no advantage to placement of a ureteral stent or a nephrostomy tube for proximal ureteral stones with regard to stone-free rates, and that stents lead to decrease in quality of life. Placement of a ureteral catheter to the level of the stone will only help target the stone, specifically in radiolucent stones.

33. A 58-year-old woman has continuous urinary incontinence.two weeks after electiverobotic hysterectomy. VCUG is normal and retrograde ureterogram is shown. The next step is:
A. observation.
B. urethral catheter drainage.
C. double-J stent placement.
D. percutaneous nephrostomy.
E. ureteroneocystostomy.



ANSWER=C
The retrograde pyelogram reveals a ureterovaginal fistula and ureteral narrowing. The initial step should be placement of a double-J stent. If that is successful, that will improve her incontinence and

potentially allow for healing of the fistula tract. Nephrostomy tube placement would be considered if a stent could not be placed. A vesicovaginal fistula is not present (normal VCUG); therefore, urethral catheter placement alone would not be helpful. Urethral catheter drainage with a ureteral stent may maximize drainage and increase the likelihood of closure of the ureterovaginal fistula. If the fistula does not heal with prolonged stent drainage, then ureteral reimplantation would be indicated.

34. A 64-year-old man has dysuria, frequency, and hematuria following removal of a urethral catheter after radical prostatectomy. He is allergic to penicillin. A urine culture at the time of catheter removal grew Enterococcus faecalis. The best treatment is:

A. cephalexin.
B. gentamicin.
C. ciprofloxacin.
D. clindamycin.
E. nitrofurantoin.
ANSWER=E

Most Enterococci are sensitive to amoxicillin, extended-spectrum penicillin derivatives (e.g., piperacillin), nitrofurantoin, and fosfomycin. Fluoroquinolones, clindamycin, aminoglycosides, and cephalosporins are not reliably effective against this organism.

35. A 25-year-old man has a left scrota1 exploration and subsequent orchiectomy. Pathologic and staging evaluation reveal a NSGCT clinical stage 2B. After full-dose platinum-based chemotherapy, he has a residual 3 cm para-aortic mass. The next steps are RPLND and:

A. scrotal XRT.
B. wide excision of the scrotal scar and spermatic cord remnant.
C. removal of the spermatic cord remnant.
D. left hemiscrotectomy and removal of spermatic cord remnant.
E. left hemiscrotectomy, removal of the spermatic cord remnant, and ipsilateral ilioinguinal node dissection.
ANSWER=C

In patients with low-stage NSGCT undergoing primary RPLND after scrotal violation, the scrotal scar should be widely excised with the spermatic cord remnant at the time of surgery. This patient, however, has higher volume disease and was treated with induction chemotherapy. Given the relative absence of local relapse after systemic treatment, scar excision, hemiscrotectomy, scrotal XRT, and inguinal lymph node dissection are not required for patients such as this who are treated with full-dose platinum-based regimens. Removal of the spermatic cord remnant, containing the gonadal vein, should be performed at the time of RPLND in both the primary and postchemotherapy settings.

36. A 22-year-old woman requests a copy of her medical records. Your office has a right to deny the request if the records:

A. pertain to billing matters.
B. pertain to medical information.
C. pertain to psychotherapy.
D. are electronically stored.
E. are more than five years old.
ANSWER=C

Based on the HIPAA regulations of 1996, a patient has the right to inspect and copy medical information that may be used to make decisions about their care. These requests should be submitted in writing. Most commonly they will include medical and billing records. The patient is not entitled to psychotherapy notes or information compiled in a reasonable anticipation of or for use in a civil, criminal or administrative action or proceedings. If the access to medical information is denied, the patient has the right to request a review by an independent party.

37. A 32-year-old man with inflammatory bowel disease has passed two calcium oxalate stones. Twenty-four-hour urine collection reveals elevated oxalate. The next step is:

A. restrict oxalate.
B. restrict sodium.
C. calcium.
D. thiazides.
E. potassium citrate.
ANSWER=C

Enteric hyperoxaluria is commonly associated with inflammatory bowel disease or shortgut syndrome. Malabsorption increases the colonic permeability of oxalate by causing fat and bile to bind to intraluminal calcium, leaving oxalate unbound and free to traverse the colonic epithelium. Restricting oxalate is generally insufficient as the cause is not an overabundance of oxalate and compliance is difficult for regimens intending to eliminate all oxalate sources. Oral calcium binds to the free oxalate and prevents its absorption. Thiazide diuretics are most commonly used in hypercalciuria. Potassium citrate is useful for prevention of stones; however, calcium supplementation is more important in patients with enteric hyperoxaluria without evidence of hypocitraturia on the 24-hour urine collection. Sodium reduction is also useful in general but most useful in patients with hypercalciuria.

38. A two-month-old girl with prenatal hydronephrosis is on antibiotic prophylaxis and has a serum creatinine of 0.3 mg1dL. Bilateral hydroureteronephrosis is identified on ultrasound and VCUG shows no VUR. MAG-3 diuretic renal scan reveals equal function with a T 112 of 21 minutes on the right and 87 minutes on the left. The next step is:

A. left cutaneous ureterostomy.
B. left ureteral reimplantation.
C. bilateral ureterostomy.
D. repeat ultrasound in one month.
E. MR urogram.
ANSWER=D

Over 90% of antenatally detected megaureters will improve with conservative management. The T 112, or Lasix washout time, especially in neonatal megaureters is not a reliable indicator of obstruction, so a normal creatinine and symmetric renal function support initial observation in this child. An end cutaneous ureterostomy is indicated in the neonate with a megaureter and sepsis, ipsilateral reduced function (less than 35% in a neonate), or in cases of marked or increasing hydroureteronephrosis. A tapered reimplant is almost never indicated in a neonate with a megaureter. MR urography gives improved anatomic detail, but the site of narrowing is fairly constant in megaureters and exact delineation is not required to determine the best management. Conservative management with follow-up ultrasonography is the best next step since this will likely spontaneously improve.

39. A 62-year-old woman with multiple sclerosis has persistent urinary urgency and frequency. Pressure flow urodynamics reveal detrusor overactivity and increased pelvic floor EMG activity during volitional voiding. An MRI scan will most likely reveal evidence of demyelination:

A. of the cerebral cortex.
B. of the cerebellum.
C. between the pons and sacral spinal cord.
D. between the conus medullaris and the cauda equina.
E. between the sacral spinal cord and the bladder.
ANSWER=C

Multiple sclerosis may involve the central and/or peripheral nervous systems. Depending on the location, level and extent of demyelination, a variety of urodynamic patterns may result. Pelvic floor EMG activity in this individual is increased during voiding which suggests detrusor external sphincter dyssynergia, a

urodynamic finding that exists only with neurological lesions between the pons and the sacral spinal cord. Lesions at or distal to the sacral spinal cord would likely result in detrusor areflexia and lesions above the pons result in detrusor overactivity with synergistic activity of the proximal and distal sphincter mechanisms.

40. A 39-year-old man with VHL disease has a 4 cm left upper pole renal mass and several simple appearing lower pole renal cysts. The right kidney also has several cysts as well as two 1.2 cm lower pole solid masses. Renal function is normal. The next step is:

A. radiofrequency ablation of left renal mass.
B. staged bilateral radiofrequency ablation.
C. left radical nephrectomy.
D. left renal exploration with resection of solid mass and renal cysts.
E. bilateral partial nephrectomies.

ANSWER=D

RCC in von Hippel Lindau (VHL) disease is characterized by both solid renal masses and renal ' cysts that contain either frank carcinoma or a lining of abnormal clear cells that represent incipient carcinoma. Appropriate surgical treatment of RCC in VHL, therefore, requires excision of all solid and cystic renal lesions, preferably through a nephron sparing approach, rather than through radical nephrectomy. Although partial nephrectomy represents effective initial treatment of patients with RCC and VHL disease, it should be withheld until tumor size reaches 3 cm or more. In this scenario, both right renal masses are less than 3 cm and should be observed. This is because most of these patients will develop locally recurrent RCC with the need for repeat surgery. The 3 cm cut point, therefore, reduces the number of surgical interventions to optimize renal function and to minimize the risk of metastatic disease. This 3 cm rule also applies to patients with hereditary papillary RCC and Birt-Hogg-Dube syndrome, but not for patients with hereditary leiomyomatosis RCC. Because repeated partial nephrectomy can be challenging, a number of centers are moving toward thermal ablative treatment techniques in the setting of recurrent disease, though these have the best results when reserved for those with tumors that are less than 3 cm in size.

41. A 43-year-old man desires a biological child with his 38-year-old wife. Both testes are 5 cm in longitudinal axis and firm on physical examination. Two semen analyses show azoospermia with volumes of 2.1 and 2.3 mL. FSH is 2.8 IUIL. The next step is:

A. adoption.
B. TRUS.
C. evaluation of his wife.
D. testicular sperm extraction with ICSI.
E. microsurgical scrota1 ductal reconstruction.

ANSWER=C

The likelihood of obstructive azoospermia is 96% with testis longitudinal axis greater than 4.6 cm and FSH less than 7.6 IUIL. However, the most significant predictor of any form of reproductive intervention is maternal age, with female fecundity declining precipitously after age 37. The decision to perform microsurgical scrota1 ductal reconstruction or to obtain sperm from the testis for in vitro fertilization and lCSl rests on evaluation of the female partner, especially after age 37. Transrectal ultrasound is not necessary if semen volumes are normal (greater than 1.5 mL) as ejaculatory ductal obstruction is unlikely.

42. A 62-year-old man has a radical prostatectomy for prostate cancer. Histology reveals a Gleason 9 (4+5), pT3aNIMx cancer with negative surgical margins. His postprostatectomy PSA is c 0.1 ngImL. To minimize the risk of relapse, the next step is:

A. adjuvant docetaxel.
B. external beam XRT.
C. LH-RH agonist therapy for six months.
D. lifelong LH-RH agonist therapy.
E. LH-RH agonist therapy for six months and external beam XRT.

ANSWER=D

The treatment of men with isolated lymph node metastasis at the time of prostate cancer surgery has been controversial. The use of adjuvant XRT for adverse pathologic characteristics at the time of prostatectomy has been evaluated in randomized clinical trials. However, patients with lymph node metastasis, such as this patient, were not included in these trials, and it is generally felt that such individuals are at risk of systemic rather than local recurrence. ECOG 3807 evaluated the use of immediate hormonal ablation versus observation in men with isolated lymph node metastases noted on final pathology after radical prostatectomy. The patients treated with immediate therapy had improved overall and cancer-specific survival relative to men undergoing initial observation. No trial has been performed showing an advantage of any chemotherapy treatment in the adjuvant setting. The advantage of short-term androgen deprivation therapy, with or without XRT, in this setting has not been established.

43. In a patient with a functionally normal neobladder, typical urodynamic findings during voiding are:

A. Pabd ↑, Pves ↔, Purethra ↑.
6. Pabd ↑, Pves ↑, Purethra ↓.
C. Pabd ↔Pves ↓, Purethra ↓.
D. Pabd ↔Pves ↑, Purethra ↑.
E. Pabd ↔Pves ↔, Purethra ↓.

ANSWER=B

After orthotopic urinary reconstruction, patients may develop new voiding difficulties or incontinence, and a urodynamic evaluation is appropriate to evaluate storage function and bladder outlet. Micturition following orthotopic neobladder diversion is accomplished through abdominal straining. On a urodynamic study, this would be indicated by increased abdominal and vesical pressure accompanied by a relaxation of the external urinary sphincter and a decrease in urethral pressure.

44. A 28-year-old man receives salvage chemotherapy and a stem cell transplant for metastatic NSGCT. His markers have normalized and his CT scan is shown. The next step is:

A. observation.
B. PET scan.
C. XRT.
D. percutaneous biopsy.
E. RPLND.

ANSWER=E

This patient has a residual retroperitoneal mass after salvage chemotherapy with stem cell transplant with normalized serum tumor markers. The recommended management is surgical resection in the form of RPLND. The histologic distribution in this setting is notable for a higher rate of viable germ cell tumor (53%) and a lower rate of necrosis (26%) than patients undergoing RPLND after induction chemotherapy. Given this rate of viable disease, observation is not appropriate. The major limitation of fluorodeoxyglucose (FDG) PET for evaluation of NSGCT is that teratoma is not FDG avid. In a prospective study by Oeschle, et all

of 121 patients with NSGCT and a residual mass following chemotherapy, the accuracy of PET to predict tumor viability was 56% which was no better than CT (55%) or serum tumor markers (56%). Thus, PET has no role in the assessment of residual masses in patients with a NSGCT, and should be reserved for use in patients with seminoma who have a residual mass greater than 3 cm after chemotherapy, as teratoma is not a concern in such cases. Similarly, percutaneous biopsy may not be able to sample the mass adequately, particularly given the potential for treatment effect in the tissues and may lead to a false negative. XRT does not play a role in the management of a residual mass in patients with NSGCT.

45. A four-year-old uncircumcised boy has a two-week history of foreskin swelling with urination. The retained urine under the foreskin drains slowly following completion of voiding. There is no dysuria or hematuria. Physical examination reveals mild erythema of the distal foreskin and a phimotic ring. The meatus cannot be visualized. The next step is:

A. observation.
B. sitz baths.
C. topical steroid ointment.
D. dorsal slit.
E. circumcision.
ANSWER=C
The patient has a pathologic phimosis that does not allow adequate urinary drainage. Observation is only appropriate in the setting of physiologic phimosis in which the foreskin is not retractable due to normal physiologic adhesions, as opposed to pathologic phimosis, which is development of a dense fibrotic ring from chronic inflammation. Treatment of pathologic phimosis with a topical steroid ointment (0.05% betamethasone) is effective in up to 90% of cases in relieving the phimosis and allowing adequate retraction of the foreskin. If the patient had more acute problems such as severe balanitis or more obstructive voiding symptoms, then surgical intervention with a dorsal slit, preputioplasty, or circumcision may be appropriate. Sitz baths alone are unlikely to rectify the problem.

46. Vascular reconstruction is recommended in hypertensive patients with:

A. bilateral medial fibroplasia.
B. bilateral ostial atherosclerotic lesions and poorly controlled hypertension on two medications.
C. unilateral 85% renal artery stenosis and a serum creatinine of 1.5 mgldL.
D. bilateral 70% renal artery stenosis and a serum creatinine of 4.5 mg1dL.
E. bilateral80% renal artery stenosis and serum creatinine of 2.0 mg/dL.
ANSWER=E
Revascularization is typically recommended in renal artery stenosis when greater than 75% occlusion occurs either bilaterally or in a solitary kidney. With severe renal loss (serum creatinine > 4 mg/dL), the likelihood of renal recovery is substantially reduced and revascularization is not recommended. Atherosclerotic renal vascular hypertension should be treated medically, typically with at least three medications, before resorting to revascularization. Medial fibroplasia is not typically progressive; thus, revascularization for this process is rarely required.

47. Compared to an electrohydraulic lithotriptor, the factor most likely to contribute to decreased pain using an electromagnetic lithotriptor is the:

A. amount of kilovolts (kV) utilized.
B. lack of an electrical spark.
C. avoidance of a water bath.
D. increased entry surface area of the energy.
E. decreased size of the focal zone.
ANSWER=D
Electromagnetic generators are more controllable and reproducible than electrohydraulic generators because they do not incorporate a variable in their design such as the underwater spark discharge. The introduction of energy into the patient's body over a large skin area causes less pain. The water bath, the electric spark, and the focal zone size have no direct effects on patient pain. The kilovolt does not impact the amount of pain.

48. A one-month-old girl with a history of glucose-6-phosphate dehydrogenase deficiency has a febrile UTI. Urine culture grows Enterococcus and she is treated with amoxicillin. VCUG shows bilateral grade 4 VUR. The most appropriate prophylactic antibiotic is:

A. amoxicillin.
B. amoxicillin/clavulanate K (Augmentin@).
C. trimethoprim/suIfamethoxazole.
D. nitrofurantoin.
E. cephalexin.
ANSWER=E
Prophylactic antibiotics should ideally have low serum and high urinary concentrations as well as minimal effect on the fecal flora. All of the listed antibiotics are reasonable prophylactic agents other than Augmentin which has too wide a spectrum. In this child, I amoxicillin is not a good choice since the greatest risk of recurrent infection is in the first few weeks after the initial infection, and the fecal flora may be resistant to the therapeutic antibiotic that was used. Nitrofurantoin cannot be used in children with GGPD deficiency and, like trimethoprimlsulfamethoxazole, should be avoided in the first few months of life 1 since it can cause neonatal hyperbilirubinemia. Therefore, cephalexin is the best choice.

49. A 35-year-old man has primary infertility. On physical examination, neither vas deferens is palpable and each testis is 34 mL in volume. Semen analysis reveals a 0.3 mL volume and azoospermia. The man and his wife would like to pursue all options for parenthood. The next step is:

A. scrotal ultrasound.
B. Y-chromosome microdeletion analysis and karyotype.
C. cystic fibrosis mutation analysis on both partners.
D. diagnostic testicular biopsy with scrotal exploration.
E. donor sperm intrauterine insemination.
ANSWER=C
The majority of patients with congenital bilateral absence of the vas deferens (CBAVD) are found to have either a mutation or a 5T polymorphism of the CFTR (cystic fibrosis transmembrane regulator protein) gene. Men with CBAVD may also suffer from subclinical or mild pulmonary or pancreatic dysfunction arising from the same CFTR gene mutation or polymorphism. In this scenario, the next step is cystic fibrosis mutation analysis on both partners. Genetic testing that does not detect a mutation does not necessarily rule out the presence of a CFTR mutation, and therefore, both the male and female partner should i undergo this testing. If both the male and female partner have a CFTR mutation, the 1 couple's children have a 25% chance of having mutations in both inherited CFTR genes, and thus, developing clinical cystic fibrosis. Diagnostic testicular biopsy is not necessary since CBAVD is associated with obstructive azoospermia. Scrotal ultrasound and scrota1 exploration will not result in detection of the vas deferens; absence of the vas deferens is diagnosed by physical examination. Patients with CBAVD characteristically have normal karyotypes and do not have AZF deletions of the Y-chromosome. While donor insemination is an option, it is not the next step for this couple that "would like to pursue all options."

50. The starting dose of a PDE5 inhibitor should be lowered in a patient taking: A, indinavir.

B. fluconazole.
C. warfarin.
D. doxycycline.
E. tacrolimus.
ANSWER=A
The cytochrome P450 (CYP3A4) pathway is the principle metabolic system for the metabolism of sildenafil, tadalafil, avanafil, and vardenafil. Potent CYP3A4 inhibitors like the protease inhibitors, indinavir and ritonavir, ketoconazole, and macrolide antibiotics can increase serum levels of PDE5 inhibitors. The initial dose of PDE5 inhibitor should be lowered in patients taking potent CYP3A4 inhibitors. Indinavir is the only potent CYP3A4 inhibitor listed. Warfarin and tacrolimus are not CYP3A4 inhibitors. Doxycycline is a moderate CYP3A4 inhibitor.

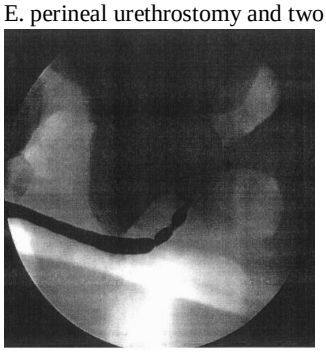
51. During PCNL, a collecting system perforation is noted. The first sign of significant extravasation of irrigant into the peritoneal cavity is:
A. hypotension.
B. hypercarbia.
C. abdominal distension.
D. narrowed pulse pressures.
E. increasing ventilatory pressures.
ANSWER=D
Narrowed pulse pressures (rise in diastolic pressure) precede difficulty with ventilation, hypercarbia, and a rise in central venous pressure. Extravasated irrigant increases abdominal pressure leading to decreased venous return, and thus, narrowing the pulse pressure. Distension is not appreciated in the prone position until later in the course. Hypotension would signal the possibility of significant hemorrhage. Increasing ventilatory pressures is a later sign when there is significant fluid in the peritoneal cavity and when the patient is returned to the supine position.

52. A 30-year-old man has persistent hypertension and paroxysmal headaches. Plasma catecholamine levels are 1100 ng/L. Three hours after a 0.3 mg single oral dose of clonidine, catecholamine levels are 400 ng/L. The most likely diagnosis is:
A. renal artery stenosis.
B. pheochromocytoma.
C. essential hypertension.
D. adrenal hyperplasia.
E. idiopathic hyperaldosteronism.
ANSWER=C
Patients with suspected pheochromocytoma rarely present with normal or mildly elevated plasma catecholamines. When signs and symptoms of pheochromocytoma are present and plasma catecholamines are minimally elevated, it is critical that the cause of hypertension is determined. The best way to distinguish between essential hypertension and pheochromocytoma in this situation is an oral clonidine test. Patients with essential hypertension will experience a significant drop in norepinephrine due to suppression of production by the sympathetic nervous system, while those with pheochromocytoma will not. The clonidine test is not useful in assessing for renal artery stenosis, adrenal hyperplasia, or idiopathic hyperaldosteronism.

53. In penile reconstruction after amputation, microsurgical re-anastomosis of the dorsal artery and vein is most important in preventing:
A. glans atrophy.
B. urethral stricture.
C. erectile dysfunction.
D. skin loss.
E. penile numbness.
ANSWER=D
In the case of traumatic amputation of the penis, reconstruction with simple urethral and corporal re-anastomosis should be attempted. Reconstruction alone can preserve erectile function, glans vascularity, and urethral continuity. Prompt macroscopic reconstruction is preferred over delayed surgery for microsurgical re-anastomosis. Microvascular reanastomosis is required for preservation of skin (dorsal artery and vein re-anastomosis) and sensation (dorsal nerve re-anastomosis). Erectile function results are similar with I macroscopic and microscopic approaches. The paired dorsal arteries travel along the 1 dorsum of the corpora cavernosa. They give branches to the circumflex arteries which supply the corpus spongiosum; the dorsal arteries then arborize to the glans penis. While the dorsal arteries do give perforators to the corpora cavernosa, their contribution to erectile function is not consistent. It is the arborization in the glans penis which, through retrograde flow, helps supply the distal shaft skin.

54. A 22-year-old sexually active woman complains of vulvovaginal itching and flu-like symptoms. On physical examination, she is afebrile and the only finding is a fissure in the left labia majora with no vaginal discharge. Urinalysis is negative. The treatment that can prevent recurrence of her symptoms is:
A. hydrocortisone cream.
B. diphenhydramine cream.
C. intramuscular ceftriaxone.
D. imiquimod cream.
E. oral acyclovir.
ANSWER=E
This patient has genital herpes (herpes simplex virus, HSV), of which 85-90% are caused by HSV-2 and 10-15% are caused by HSV-1. Initial genital herpes infection is often associated with constitutional flu-like symptoms. While vesicular eruptions can be found on physical exam, women especially may present with atypical lesions, such as abrasions, fissures, or itching. Empiric treatment may be initiated. Antiviral creams are not helpful for genital herpes. Oral acyclovir has been shown to prevent recurrence of genital herpes and associated symptoms. Hydrocortisone cream is not recommended for the treatment of genital herpes; however, recent studies suggest that a combination of topical acyclovir and hydrocortisone cream may reduce the recurrence of herpes labialis. Ceftriaxone is an appropriate treatment for chancroid but not genital herpes. Topical imiquimod is not recommended for treatment of routine genital herpes but is being used to treat recalcitrant cases of acyclovir-resistant herpes in immunocompromised hosts.

55. A 58-year-old man has a weak urinary stream. There is no history of lower urinary tract instrumentation or trauma. Retrograde urethrogram is shown. The next step is:
A. antegrade urethrogram.
B. direct vision urethrotomy (DVIU).
C. excision and primary anastomosis.
D. urethroplasty with graft or flap.
E. perineal urethrostomy and two stage repair.



ANSWER=D
This retrograde urethrogram is an adequate study and does not require an antegrade study. The study shows a 5 cm mid- to proximal

bulbar urethral stricture. The next step is urethroplasty with graft or flap. Some evidence would support extended excision and primary anastomosis in this patient; however, only in the most experienced of hands. The stricture is too long (> 1.5 cm) for endoscopic manipulation. Perineal urethrostomy and two stage repair would be a more morbid approach for this stricture which could be successfully repaired in a single stage.

56. A two-month-old boy is noted to have an asymmetrical skin dimple over his upper sacrum on a physical examination. The next step is:

A. observation.
B. spinal ultrasound:
C. VCUG.
D. spinal MRI scan.
E. urodynamic study.
ANSWER=B

The finding of a skin dimple or cleft, discoloration, hemangioma, hair tuft, or other cutaneous malformation over the sacrum raises the question of an underlying spinal cord problem, such as tethering or lipoma involving the distal spinal cord. It is important to diagnose this promptly as there commonly will be progressive neurological impairment over time which will not be reversible with later intervention. Early treatment of tethered cord may preserve full neurological abilities. Spinal ultrasound is very useful in assessing the lower spinal cord in children under four months, as there is not full ossification of the bony structures, and thus, image quality is excellent. In addition, ultrasound holds the advantage over MRI scan in that it will not require general anesthesia and it is also much less costly. There is good correlation of ultrasound findings with MRI scan in this age group. If the ultrasound is normal, then no further imaging is needed. However, if there is an abnormality on spinal ultrasound, further evaluation with an MRI scan may be needed for clinical decision-ma king. lnvasive lower urinary tract evaluations such as VCUG and urodynamic studies are premature, unless there is a diagnostic finding of a spinal abnormality. II

57. A three-year-old boy with spina bifida and a neurogenic bladder has early filling bilateral grade 2 VUR. His bladder capacity is 170 mL with low detrusor pressure. DMSA shows bilateral renal scars. He .is on CIC four times daily and has recurrent febrile UTls while on prophylactic antibiotics. The next steps are to change prophylaxis and:

A. begin dual antibiotic prophylaxis.
B. start antimuscarinic medication.
C. increase frequency of CIC.
D. vesicostomy.
E. surgical repair of VUR.
ANSWER=E '

This child with a neurogenic bladder has chronic bacteruria secondary to CIC. Most children on CIC do not have symptomatic infections, but this boy has developed renal scarring in ' spite of prophylaxis. This is an indication for a more aggressive approach to eliminate ascending infection. Surgical repair of VUR is the most appropriate choice. In the presence of scarring, observation (no change in therapy) is inappropriate. Increasing the frequency of CIC will not decrease the incidence of bacteruria and will not decrease the risk to the upper tracts since he has a low-pressure bladder. Antimuscarinics will not be beneficial in' what is already a low-pressure bladder. A change in prophylaxis risks future infections and additional renal injury. Vesicostomy would be difficult to manage in a three-year-old and require continuous diaper dependency.

58. A 72-year-old man with metastatic prostate cancer complains of back pain. MRI scan reveals multiple spinal lesions without spinal cord involvement. The best immediate treatment is:

A. LH-RH antagonist.
B. LH-RH agonist.
C. anti-androgen monotherapy.
D. oral estrogen.
E. combination LH-RH agonist and anti-androgen.
ANSWER=A

In this patient with symptomatic metastatic disease and no evidence of spinal cord compression, prevention of testosterone surge and potential symptomatic flare is the best therapy. Leuprolide monotherapy is associated with an initial temporary testosterone increase and bicalutamide (an anti-androgen) would not cause immediate improvement of symptoms. Although estrogen would bring about testosterone decline, degarelix (a LH-RH antagonist) would bring about quicker castrate levels (within three days) and would accomplish this faster than combination LH-RH agonist and anti-androgen. Ketoconazole and bilateral orchiectomy are other options to rapidly reduce testosterone levels and can do so within 12 hours. The time to achieve castrate levels of testosterone is one to two weeks with estrogen, and three to four weeks for LH-RH agonists.

59. A 33-year-old woman has dysuria and fever. Urinalysis is leukocyte esterase positive and nitrite negative. There are 10 RBC and 30 WBC/hpf on microscopy. Urine culture will likely grow:

A. Escherichia coli.
B. Pseudomonas aeruginosa.
C. Serratia marcescens.
D. Klebsiella oxytoca.
E. Proteus mirabilis.
ANSWER=B

Bacteria may convert urinary nitrates into nitrites and this may be used as evidence of UTI. Gram-negative bacteria commonly do this, while Gram-positive species generally do not. One very important gram-negative exception is Pseudomonas, which does not contain the enzymatic machinery to make this conversion. Thus, a negative nitrite by urinary dipstick in this patient with symptoms and other urinalysis findings suggestive of UTI should likely be treated presumptively pending culture, and Pseudomonas is one of the very important, aggressive pathogens that must be considered in this circumstance.

60. A 27-year-old man and his 27-year-old wife have not conceived after four months of attempts. A semen analysis is normal while a sperm DNA fragmentation test reveals high levels of DNA fragmentation. She has been cleared by her gynecologist and his evaluation is unremarkable. The next step is:

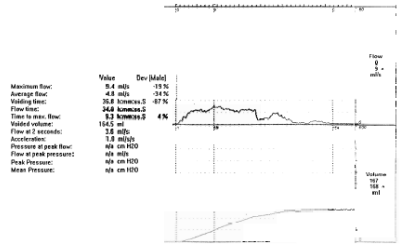
A. timed intercourse.
B. karyotype of the man.
C. intrauterine insemination with ovulation induction.
D. lCSl with ejaculated sperm.
E. counsel regarding high risk of congenital anomalies.
ANSWER=A

Sperm DNA integrity has garnered much interest over the last decade as a possible source of pathology for couples trying to conceive. Sperm DNA is complexed with protamines, resulting in a DNA structure that is six times more compact than the DNA found in somatic cells. Some investigators hypothesize 'that abnormally high levels of sperm DNA fragmentation are associated with abnormal reproductive outcomes, including lower fertilization, pregnancy, live birth rates, and higher rates of miscarriage. The literature on outcomes associated with abnormally high sperm DNA fragmentation levels is divided and inconsistent. Some studies have reported that elevated levels of sperm DNA fragmentation are associated with lower rates of pregnancy by intercourse, but many couples still conceive via intercourse despite elevated sperm DNA

fragmentation. At this time, the World Health Organization categorizes sperm DNA integrity tests as "research procedures". Given the conflicting nature of the literature regarding elevated DNA fragmentation levels and reproductive outcomes, the AUA states, "Currently, the tests have inadequate sensitivity and specificity to be of value as screening tests for pregnancy by intercourse". Additionally, there are no therapies at this time that have been proven to correct an abnormal DNA fragmentation result. Since this couple has only attempted conception for four months, they should continue with intercourse for a total of 12 months. If no pregnancy results after 12 months of timed intercourse, then intrauterine insemination with ovulation induction or ICSl with ejaculated sperm could be considered. At this time, there is no evidence that men with elevated sperm DNA fragmentation rates have an increased risk of offspring with congenital abnormalities, so this line of counseling is not indicated. Finally karyotype of the man is not indicated given that his semen analysis was normal.

61. A 65-year-old healthy man with bothersome LUTS (AUA Symptom Score 15) has a non-invasive uroflow as shown. His PVR is 100 mL. Based on these results, the:

A. study is inconclusive due to a low voided volume.
B. patient has bladder outlet obstruction.
C. patient has underactive detrusor.
D. cause of his LUTS cannot be identified.
E. patient should undergo a pressure-flow urodynamic study.



ANSWER=D

Uroflow is a screening tool for patients with lower urinary tract symptoms. A peak flow rate less than 15 mUsec is considered abnormal. However, this study is unable to differentiate between bladder outlet obstruction and detrusor underactivity. If the bladder volume is less than 125-1 50 mL, the flow rate measurements are inconclusive. The bladder volume is the voided volume plus PVR. This patient may benefit from a pressure-flow urodynamic study to further elucidate the cause of his LUTS. However, this would usually be considered after a failed trial of medications.

62. Hypercoagulability in patients with ESRD secondary to nephrotic syndrome is due to:

A. hypohomocystinenemia.
B. urinary loss of antithrombin Ill.
C. retention of protein 5.
D. retention of protein C.
E. decreased antiphospholipid antibodies.

ANSWER=B

A hypercoagulable state can occur in nephrotic syndrome with urinary loss of the natural I anticoagulants: antithrombin Ill, protein C, and protein 5. Hyperhomocysteinemia is common in ESRD, and has been associated with thrombophilia. Antiphospholipid antibodies are found in 30% to 50% of patients with systemic lupus erythematosus, a cause of ESRD. Loss of antithrombin Ill and increased antiphospholipid antibodies increase the risk of thrombosis of renal allografts, dialysis access devices, and postoperative i thromboembolic events. Thus, anticoagulation should be considered in these patients.

63. Performance sports drinks may increase urinary:

A. sodium.
B. citrate.
C. calcium.
D. uric acid.
E. oxalate.

ANSWER=B

Performance sports drinks may increase urinary citrate and pH lending a protective effect against urinary lithogenicity. However, these drinks have a high fructose and total carbohydrate content so they should not be recommended as the primary means of hydration for stone formers. Though the sodium content may be high in these drinks, they do not lead to hypernatriuria. Sports drinks have no effect on urinary calcium, oxalate, and uric acid.

64. When using a colon segment instead of ileum for urinary diversion:

A. bowel obstruction is more common.
B. electrolyte abnormalities are more common.
C. it is more difficult to reach the urethral stump for orthotopic reconstruction.
D. an anti-refluxing anastomosis with tunneling is more difficult.
E. nutritional problems are less frequent.

ANSWER=E

In general, when comparing the use of colon and ileum for urinary diversion, there are few differences that would favor one over the other except in special circumstances. One of the most common special circumstances is the setting of prior pelvic radiation therapy. In this instance, the use of transverse colon is often favored as it is usually out of the radiated field. Probably because of its larger diameter, the incidence of postoperative bowel anastomotic obstruction with colon is less than that for ileum. Construction of an antirefluxing anastomosis with a submucosal technique is easier with colon segments. Colon segments can usually reliably be mobilized to reach anywhere in the. abdomen or pelvis. Although the same electrolyte abnormalities are possible with either segment, nutritional problems (Vitamin BIZ deficiency and bile acid salt absorption) are less with colon when compared to ileum as long as the ileocecal valve is left intact.

65. A 68-year-old man has a partial penectomy for a 4 cm squamous cell carcinoma with lymphovascular invasion and involvement of the subepithelial connective tissue. Physical exam reveals a 1.5 cm fixed, right inguinal mass. CT scans of the abdomen and pelvis are normal. His pathologic tumor stage (p) and clinical lymph node stage (c) are:

A. pTacN1.
B. pTlacN1.
C. pTlb cN2.
D. pTlb cN3.
E. pT2 cN3.

ANSWER=D

The 2016 AJCC (8th edition) staging for penile cancer includes several changes. The new Ta definition does not allow any overt destructive invasion but encompasses other noninvasive squamous cell carcinoma types including basaloid, warty, papillary, and rnixed types. TI is substratified into groups with different risks of nodal involvement, with Tlb now including perineural invasion and sarcomatoid changes as well as lymphovascular invasion. A critical change was inclusion of only corpus spongiosum as T2 and moving corpus cavernosum to T3. Currently, urethral invasion can be either T2 or T3, whereas previously, it was classified as T3. pN1 is now increased to up to 2 unilateral positive lymph nodes while pN2 is greater than two positive lymph nodes (unilateral or bilateral). For the first time, nodal staging is divided into both clinical and pathologic staging schemes. With a palpable, fixed nodal mass, regardless of the size or unilateral/bilateral involvement, the clinical lymph node status is cN3. In patients with cN3 disease, neoadjuvant chemotherapy is now recommended as first line treatment prior to node dissection.

66. A 67-year-old woman has a transvaginal repair of a post-hysterectomy vesicovaginal fistula located above the trigone with communication to the vaginal vault. The best flap to interpose is:

A. peritoneal.
B. omental.
C. Martius.
D. labial myocutaneous.
E. gracilis.
ANSWER=A

During a vaginal approach to a high riding post-hysterectomy fistula, a peritoneal flap is preferred. It is relatively easy to raise a well-vascularized flap of peritoneum in this location. A Martius flap would be very difficult to mobilize to that location in the vagina without compromising the blood supply. An omental flap is occasionally useful from a vaginal approach if it had previously been secured in the pelvis from prior surgeries. A gracilis flap can be utilized but is typically not necessary for a primary repair. A labial myocutaneous flap can be utilized, particularly if there is significant foreshortening of the vagina or loss of vaginal mucosa, but is also not usually used for a primary repair.

67. A 62-year-old woman is incidentally found to have a 1 cm vaginal extrusion of her polypropylene sling four-years after placement. She has been on vaginal estrogen therapy for the past six months for vaginal atrophy. She is sexually active and neither she nor her partner have any complaints related to the mesh. The next step is:

A. observation.
B. discontinue the estrogen.
C. cease sexual activity for six months.
D. reapproximate the vaginal tissue over exposed sling.
E. explantation of entire sling.
ANSWER=A

In the rare patient who is asymptomatic despite vaginal exposure of mesh, intervention may not be required. Local estrogen replacement therapy can rarely facilitate tissue healing; however, it would be best to continue as she has vaginal atrophy. More often, patients, or their sexual partners, are bothered by the vaginal extrusion. In these cases, excision of the exposed mesh with approximation of the vaginal wall is warranted. Mesh excision in this case would be unnecessary and place her at risk of recurrent stress incontinence. Cessation of sexual activity will not affect healing of tissue over the extruded mesh.

68. A 27-year-old woman on omeprazole and oral contraceptives has a macular rash on her forearm and joint pain. Urine dipstick reveals 2+ protein and 3+ blood. Urine microscopy shows 20 RBUhpf and eosinophils. Serum creatinine is 1.9 mg/dL. Renal ultrasound is normal. The next step is:

A. observation.
B. stop omeprazole.
C. stop oral contraceptives.
D. prednisolone.
E. lisinopril.
ANSWER=B

This patient likely has an acute interstitial nephritis (AIN) caused by the proton pump inhibitor, omeprazole. The findings of microscopic hematuria, proteinuria, and renal failure, along with rash and joint pain are suggestive of AIN. The first step should be to stop the causative agent. Oral contraceptives are not known to induce AIN. Although oral ACE inhibitor (lisinopril) and systemic steroid (prednisolone) are indicated in the treatment of AIN, the first step should be to remove the potential causative agent.

69. After traumatic renal injury, the predictors of persistent bleeding are depth of parenchymal injury, presence of arterial blush, and:

A. urinary extravasation.
B. devitalized fragment.
C. thickness of hematoma.
D. location of laceration.
E. mechanism of injury.
ANSWER=C

After renal trauma, the likelihood of renal exploration, renorrhaphy, and nephrectomy is associated with the grade of injury. For example, grade 4 injuries have a 64 fold higher likelihood of needing nephrectomy than a grade 1 injury. The literature shows that for grade 3 and 4 injuries, medial hematoma, hematoma > 3.5 cm in thickness, and the presence of a vascular contrast blush are associated with increased risk of bleeding and need for intervention. The presence of such findings should alert the urologist to the potential need for angiography and selective embolization of segmental vascular injuries. While urinary extravasation and devitalized fragments increase the risk of urinoma formation, they are not associated with higher rates of bleeding. Neither location of laceration or mechanism of injury predict complications independent of grade.

70. A 12-year-old girl develops pelvic pain with menarche. Examination reveals a duplicated vagina with an obstructive bulging perineal membrane which is incised with subsequent release of trapped menses from one of the vaginal vaults. Her periods become normal and the pain resolves. The next step is:

A. observation.
B. renal ultrasound.
C. pelvic MRI scan.
D. VCUG.
E. vaginoscopy.
ANSWER=B

Up to one-third of women with unilateral renal agenesis (URA) have an abnormality relating to Wolffian duct development. Conversely, 43% of women with genital anomalies, like duplicated vagina, will have URA which needs to be further evaluated with a renal ultrasound as in this patient. As such, it is imperative to obtain a renal ultrasound to assess the upper collecting system and kidney on each side. Pelvic MRI scan can further delineate the uterine and vaginal anatomy but would miss renal pathologies. VCUG does not assess for upper tract obstruction or renal agenesis. Vaginoscopy may eventually be needed and consideration made for incising any vaginal septum present, but the initial evaluation in this clinical scenario is to first understand what related anomalies are present.

71. A newborn child has a normal anus, an enlarged phallus with a single opening at its base, labioscrotal fusion, and a palpable left gonad. Karyotype is 46,XX and genitogram demonstrates a low confluence of the urethra and vagina. The most likely diagnosis is:

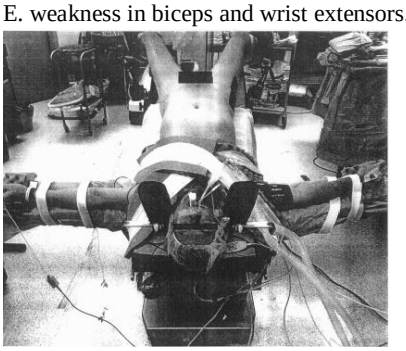
A. exogenous androgen exposure in utero.
B. mixed gonadal dysgenesis.
C. partial androgen insensitivity.
D. pure gonadal dysgenesis.
E. ovotesticular disorder (true hermaphrodite).
ANSWER=E

This newborn most likely has true hermaphroditism, known now as ovotesticular disorder of sex development (DSD). This is defined as having the presence of both ovarian and testicular tissue which can be in the form of testis, ovary, or ovotestis. The palpable gonad in this patient very likely represents either testis or ovotestis as these are the gonads that may partially descend. The most common karyotype in ovotesticular DSD is 46,XX though many patients will have a second mosaic cell line with a Y-chromosome present. The degree of sexual ambiguity in these patients varies. All of the other diagnoses here are unlikely. Exogenous exposure to androgens in an XX fetus would be expected to have non-palpable gonads as there

are normal ovaries present. Pure gonadal dysgenesis results in normal genitalia and not the appearance described in this patient. Partial androgen insensitivity occurs in 46,XY patients and since these patients do have testes, they produce Mullerian inhibitory substance (MIS) and should not have vaginal development. Mixed gonadal dysgenesis will commonly demonstrate one palpable testis with a streak on the other side, but their karyotype is mosaic, 46,XY/45,XO. .

72. A preventable complication associated with the Trendelenburg position pictured is:

A. weak leg adduction.
B. weak hip flexion.
C. pain along the dorsum of the foot.
D. numbness along the anterior thigh.
E. weakness in biceps and wrist extensors.



ANSWER=E

In the Trendelenburg position, shoulder braces should not be used due to the risk of injury I I to the brachial plexus. This manifests as weakness and tingling in the arms and fingers. In addition, the risk for injury to the brachial plexus is also accentuated by abducting the arms 1 more than 90 degrees from the tucked position. Care should be taken to avoid lowering I the robotic arms onto the dorsum of the foot when docking, which may result in pain along the dorsum of the foot. Weak leg adduction may result from injury to the obturator nerveduring pelvic lymph node dissection. Injury to the genitofemoral nerve on the psoas muscle results in numbness along the anterior thigh. Hyperextension of the hip to allow docking of the robot in the Trendelenburg position results in compression of the femoral nerve by the inguinal ligament, resulting in weak leg flexion and paresthesias.

73. In the management of advanced bladder cancer, the substitution of carboplatin for cisplatin in a multi-drug regimen has been shown to:

A. not affect outcome.
B. increase renal toxicity.
C. improve survival.
D. decrease response rate.
E. increase duration of therapy.

ANSWER=D

In a meta-analysis of four randomized trials in 286 patients, Galsky and colleagues have concluded that the substitution of carboplatin for cisplatin resulted in a statistically significant (three fold) decrease in the probability of achieving a complete response and a significant decrease in the overall response rate. Despite the decreased response rate, no significant effect on survival could be documented. In general, the renal safety profile is improved with the use of carboplatin. The duration of therapy is not affected by the substitution of carboplatin.

74. A 22-year-old woman with a history of nephrolithiasis has left flank pain. She is currently calculus free with a serum creatinine of 1.0 mgldL. CT urogram demonstrates left hydronephrosis and a 4 cm proximal to mid-ureteral stricture. Diuretic renal scan shows left renal function of 45% and T 112 of 23 minutes. The next step is:

A. ureteroscopic incision.
B. ureteroureterostomy.
C. transu reteroureterostomy.
D. ureterocal icostomy.
E. ileal ureter.

ANSWER=E

Long, proximal ureteral defects are difficult to manage. The surgeon must be ready to use a variety of approaches depending on the intraoperative findings. Endopyelotomy is contraindicated with strictures over 2 cm in length because of poor outcomes. Ureteroureterostomy is ideal for short upper or mid-ureteral strictures but is not possible with long defects as in this case. Transureteroureterostomy is contraindicated in those withnephrolithiasis. Ileal ureter should be considered for long upper ureteral defects in those with serum creatinines of c 2.0 mg/dL. Fallopian tube and appendiceal substitutions are not relaible reconstructive techniques. Other options for this patient include renal mobilization combined with either a long Boari flap (if the bladder is large) or autotransplantation. Ideal patients for ureterocalicostomy have shorter upper ureteral strictures and thin lower pole renal parenchyma. In addition, a nephrectomy may also be considered as a last resort.

75. A ten-year-old boy with PUV had an ileocystoplasty and appendicovesicostomy two years ago. He has several 1 cm bladder stones. The next step is:

A. SWL and bladder irrigation.
B. cystolithotripsy through the urethra.
C. cystolithotripsy through the appendicovesicostomy.
D. percutaneous cystolithotripsy.
E. laparoscopic cystolithotomy.

ANSWER=D

It has been reported that up to 50% of children with reconstructed bladders will develop bladder stones in their lifetime. Open cystolithotomy has been the traditional approach to treat bladder stones. In this young child with a significant stone burden, both transurethral and transstomal cystolithotripsy procedures are not ideal due to small caliber channels requiring multiple scope passes. SWL may fragment the stones, but even with irrigation, the fragments will not likely clear. A laparoscopic approach is an option, but due to the previous abdominal procedures, the laparoscopic approach has an increased risk of intraabdominal organ injury. Percutaneous cystolithotripsy has been shown to be effective with shorter hospital stays, smaller scars, and less indwelling catheter time postoperatively than the traditional open cystolithotomy.

76. A 64-year-old man with urgency, frequency, and decreased force of urinary stream has an AUA Symptom Score of 18. DRE reveals a benign 35 gram prostate. He has a PVR of 150 mL and a negative urinalysis. PSA is 1.5 ng1dL. He will have cataract surgery in two weeks. The next step is:

A. obtain pressure flow urodynamics.
B. tamsulosin.
C. finasteride.
D. tamsulosin in one month.
E. solifenacin.

ANSWER=D

This patient has bothersome LUTS that would likely benefit from therapy. Based on the findings, evaluation with a pressure-flow study would not be necessary at this point. Based on the Adult Urodynamics Guidelines, pressure-flow urodynamic study should be done to evaluate for urodynamic evidence of obstruction, particularly when invasive or irreversible therapies are being considered. At this point, empiric therapy with an alpha-blocker such as tamsulosin would be appropriate. However, this therapy should be instituted after his cataract surgery to eliminate the risk of floppy iris syndrome, which is a known risk of cataract surgery in

patients taking alpha-blockers. Finasteride would not be an appropriate therapy for this patient as it is not recommended for use in men with LUTS that do not have an enlarged prostate. Antimuscarinics would not be primary therapy in a patient with obstructive symptoms and elevated PVR.

77. A 68-year-old man has a 5 cm partially exophytic (40%) enhancing renal mass with a R.E.N.A.L. nephrometry score of 12. He has a creatinine of 0.8 mg/dL and a normal appearing contralateral kidney. He has moderate COPD and cardiovascular disease. According to the AUA Guidelines, the next step is:

A. active surveillance.
B. percutaneous radio frequency ablation.
C. percutaneous cryoablation.
D. partialnephrectomy.
E. radical nephrectomy.
ANSWER=E

The patient has a high complexity (R.E.N.A.L. score 12 and 5.0 cm) mass with normal renal function, and significant co-morbid conditions. According to the most recent AUA Guideline for small renal masses, statement #19: "Physicians should consider radical nephrectomy for patients with a solid ... renal mass where increased oncologic potential is suggested by tumor size ... In this setting, radical nephrectomy is preferred if all of the following criteria are met: 1) high tumor complexity and partial nephrectomy would be challenging even in experienced hands; 2) no preexisting CKD or proteinuria; and 3) normal contralateral kidney .... (Expert Opinion)". Therefore, radical nephrectomy is preferred over partial nephredomy for this patient. Thermal ablation has a much lower success rate for tumors over 3.0 cm in size and the mass is larger than those typically recommended for active surveillance.

78. A 30-year-old man with an incomplete C6-spinal cord injury has obstructive LUTS. Videourodynamics show a maximum flow of 5 musecond, a sustained detrusor pressure during voiding of 65 cm HzO and a PVR of 300 mL. During voiding, there isappropriate quieting of his EMG and the bladder neck is closed. The next step is:

A. dantrolene.
B. baclofen.
C. tamsulosin.
D. diazepam.
E. phenoxybenzamine.
ANSWER=C

While neurological disease can cause dyssynergy of the bladder and either the internal or external sphincters (or both),'only lesions in the spinal cord above the lower thoracic level of the sympathetic outflow may result in detrusor internal sphincter dyssynergia. Because the internal sphincter is primarily smooth muscle, dantrolene, baclofen, and diazepam, all of which affect skeletal muscle, would not be expected to have much effect. Phenoxybenzamine is a non-selective alpha-antagonist that affects both alpha-I and alpha- 2 receptors. While phenoxybenzamine could be a theoretically appropriate option, the side effect profile that affects 30% of patients and can include orthotopic hypotension, reflex tachycardia, sedation, and emesis, makes it less desirable. Additionally, there has been evidence of mutagenic activity following repeat administration in animals. Tamsulosin, a highly selective alpha-1 -antagonist, relaxes the smooth internal sphincter and is the best option of those listed.

79. A ten-year-old girl has a 1.8 cm renal pelvic stone in a horseshoe kidney with moderate hydronephrosis. The next step is:

A. SWL.
B. ureteroscopy and laser lithotripsy.
C. PCN L.
D. laparoscopic pyelolithotomy.
E. open pyelolithotomy.
ANSWER=C

Patients with horseshoe kidneys and stone burden > 1.5 cm are best managed with PCNL. If stone burden is < 1.5 cm, both SWL and ureteroscopy have been successful, but the single procedure stone clearance rates are lower than those reported with PCNL. The approach for PCNL is usually through a superior, posterior calyx in a horseshoe kidney. Laparoscopic or open pyelolithotomy would be not be indicated and may be technically difficult due to aberrant vasculature.

80. The minimal recommended time to delay elective urologic surgery and discontinue clopidogrel (Plavixa) after placement of a drug-eluting cardiac stent is:

A. three weeks.
B. six weeks.
C. three months.
D. six months.
E. twelve months.
ANSWER=D

The perioperative management of patients with drug eluting stents (DES) is decided in a multidisciplinary manner by the patient's cardiologist, surgeon, and anesthesiologist. Surgical hemorrhagic risk and the thrombotic risk of the DES needs to be considered. The risk of stent thrombosis should be weighed against the risk of bleeding. As a general approach, all elective surgical procedures should be delayed by at least six months and ideally, 12 months after DES placement. If surgery cannot be delayed due to urgency, minimizing the time off of dual antiplatelet therapy with aspirin and thienopyridines is important as the risk of stent thrombosis (ST) is significantly increased. Patients undergoing surgical procedures 12 months after percutaneous cardiac intervention are likely at lower risk of perioperative ST and major cardiac events. Maintaining dual antiplatelet therapy should be continued if the risk of perioperative bleeding is acceptable. Maintaining single antiplatelet therapy with aspirin applies to patients without concomitant risk factors of ST undergoing surgery more than 12 months after percutaneous cardiac stent placement.

81. During squeezing of the clitoris in a 45-year-old woman with complaints of urinary incontinence, no EMG activity is noted. Coughing demonstrates EMG recruitment. This is most likely representative of a:

A. partial spinal cord disruption at L5-51.
B. demyelinating lesion.
C. faulty EMG reading.
D. positive bulbocavernosal reflex.
E. normal finding.
ANSWER=E

The presence of a bulbocavernosus reflex (BCR) indicates an intact sacral arc reflex. A positive BCR would be represented by increased EMG activity and pelvic floor contraction upon squeezing of the clitoris (or gently pulling on an indwelling urethral catheter). It is present in most (70%) but not all neurologically intact women. Therefore, lack of a BCR is not an abnormal finding in a neurologically intact woman. A faulty EMG reading is unlikely since there is appropriate recruitment with coughing.

82. During prone PCNL of a large volume renal stone, air is injected into the contrast filled collecting system to delineate the posterior calyces. The patient becomes hemodynamically unstable and hypoxic. The next step is to:

A. remove ureteral catheter.
B. administer hydrocortisone.
C. administer a broad spectrum antibiotic.

D. place patient in supine position.
E. place patient in left lateral decubitus, head-down position.
ANSWER=E
Venous gas embolism is a rare but potentially fatal complication of percutaneous renal surgery. The gas (in this case, air) enters the venous system and passes through the right heart into the pulmonary circulation, blocking the output of the right heart, which results in hypoxemia, hypercapnia, and depressed cardiac output. Venous gas embolism is indicated by hypoxemia, hypotension, dysrhythmias, and auscultation of a mill-wheel cardiac murmur. Swift response is required and includes positioning the patient head down with the right side up. Removal of the ureteral catheter is not necessary. Administration of hydrocortisone would be indicated in the face of acute allergic reaction, and administration of a broad spectrum antibiotic would be indicated in the face of sepsis. Although returning the patient to a supine position from a prone position can assist in resuscitation measures, this would not be the proper maneuver for a venous gas embolism.

83. The bacterial organisms most likely to be responsible for the formation of struvite stones are Proteus mirabilis and:
A. Corynebacterium diphtheriae.
B. Escherichia coli.
C. Serratia marcescens.
D. Staphylococcus aureus.
E. Streptococcus pneumoniae.
ANSWER=D
Proteus species are most commonly associated with struvite stones. However, more than 90% of 5. aureus organisms produce urease, and are, therefore, associated with struvite stones. The remainder of the bacteria listed are not associated with urease production.

84. A 41-year-old man has a low velocity gunshot wound to the perineum. Retrograde urethrogram shows extravasation of contrast at the distal bulbar urethra. Cystoscopy reveals an isolated 1 cm defect on the ventral aspect of the distal bulbar urethra. No other injuries are identified. The next step is:
A. urethral catheter realignment.
B. suprapubic tube placement.
C. debridement and primary urethroplasty.
D. debridement and urethroplasty with flap.
E. staged urethroplasty.
ANSWER=C
All gunshot wounds of the genitalia require surgical exploration to assess and stage the injury, clean the wound, and if appropriate, attempt repair. With a low velocity gunshot wound to the anterior-urethra, primary surgical repair is indicated. Catheter realignment is associated with a higher stricture rate than primary repair. Suprapubic diversion is reserved for blunt trauma to the anterior urethra or a high velocity penetrating injury. Primary closure of the urethra is the best option when the defect is small. When the defect is larger, one should consider a staged repair: debride and mature the injured segment to the skin and then return in six months to reconstruct the urethra. Urethroplasty with graft or flap in the compromised tissue of a recent gunshot wound leads to a higher stricture rate as compared to primary repair.

85. Radiation exposure to the patient during fluoroscopy can be reduced by:
A. allowing the radiology technician to control the fluoroscopy pedal
B. using continuous imaging over multiple spot images.
C. using boosted images.
D. positioning the radiation source under the operating table.
E. using the last image hold feature.
ANSWER=E
Using the last image hold feature has been shown to reduce radiation exposure by reducing the number of repetitive images. Positioning the radiation source of the C-arm under the operating table reduces exposure to the surgeon by reducing scatter radiation but does not change patient exposure. Boosted images and continuous imaging both increase radiation exposure. Giving the fluoroscopy pedal to the surgeon to limit imaging can reduce patient radiation exposure.

86. A 47-year-old woman is undergoing percutaneous test stimulation of a lead for sacral neuromodulation. Plantar flexion and rotation of the foot is noted along with sensation in the buttock. The next step is to:
A. maintain lead and discharge home.
B. place the lead one foramen higher and re-test.
C. place the lead one foramen lower and re-test.
D. advance the lead deeper into the foramen and re-test.
E. withdraw the lead to a more superficial location in the foramen and re-test.
ANSWER=C
The motor and sensory responses noted are consistent with incorrect placement of the lead into the 52 foramen. The lead should be removed, replaced one foramen lower (S3), and re-tested. Placing the lead deeper or in a more shallow position will not result in appropriate stimulation. Correct placement of the lead into the 53 foramen will result in a bellows reflex, contraction of the perineal area, and plantar flexion of the ipsilateral great toe.

87. A 39-year-old man with a BMI of 40 has a 5 mm distal ureteral calculus on noncontrast CT scan. The stone was not visible on KUB. Four weeks after initial diagnosis, he is asymptomatic but has not passed his calculus. The next step is:
A. renal ultrasound.
B. KUB with obliques.
C. low-dose non-contrast CT scan.
D. non-contrast CT scan.
E. ureteroscopy.
ANSWER=D
There are many options to image a stone in an asymptomatic patient. For an obese patient, the imaging study with the highest sensitivity is a non-contrast CT scan. Renal ultrasound is less sensitive for stones in the distal ureter, so is not the preferred option. A KUB is utilized in follow-up if the calculus was identified on sc scout film or KUB at time of diagnosis, or if the initial location of the stone was over the sacroiliac area. As such, KUB will not be helpful in this patient. Low-dose non-contrast CT scan is not recommended in patients with a BMI over 30 due to reduced sensitivity. Ureteroscopy should not be performed until a repeat non-contrast CT scan confirms the presence of a persistent stone.

88. A five-year-old boy with a history of PUV ablation is incontinent day and night. Renal ultrasound shows normal kidneys bilaterally. VCUG shows a mildly trabeculated bladder without VUR and no urethral obstruction. PVR is 10 mL. Urinalysis is normal. The next step is:
A. timed voiding.
B. overnight bladder drainage.
C. urodynamic study.
D. antimuscarinics.
E. desmopressin.
ANSWER=A
Voiding dysfunction and incontinence are common in boys with history of PUV. Over 80% will struggle with incontinence at age five. Placing a catheter at night (overnight bladder drainage) is usually indicated in the presence of high urinary output which can occur in boys with a history of PUV secondary to a renal concentrating defect. In such patients, significant hydroureteronephrosis is expected, which this patient does not have.

Since he is not retaining urine after voiding, a urodynamic study will likely demonstrate a pattern of bladder overactivity. However, it is appropriate to try conservative measures such as timed voiding prior to proceeding with more invasive testing such as urodynamics. Antimuscarinics must be used with caution since a possible underlying myogenic dysfunction could lead to outright urinary retention. Desmopressin will not affect bladder dysfunction, which is the primary etiology of incontinence in boys with PUV.

89. According to the AUA Guidelines, sipuleucel-T should be used in men with castrationresistant prostate cancer who have: -

A. non-metastatic disease.
B. asymptomatic or minimally symptomatic metastases.
C. painful bone metastases.
D. received docetaxel chemotherapy.
E. poor performance status.
ANSWER=B

Sipuleucel-T immunotherapy is an FDA approved agent in the setting of asymptomatic or minimally symptomatic metastatic castration-resistant prostate cancer (CRPC) based on results of the IMPACT trial, published in 2010. In this randomized double-blind placebo controlled trial, sipuleucel-T was associated with a 22% relative risk reduction of death, and a four month improvement in median survival (25.8 versus 21.7 months). Notably, clinical and radiographic responses are rare with this agent, so patients should be told not to expect a decline in PSA or improvement in bone scan. According to the CRPC AUA Guideline, sipuleucel-T should not be offered to patients with symptomatic metastatic CRPC, those who have received prior docetaxel chemotherapy, poor performance status, or those who do not have metastatic disease.

90. A 55-year-old woman has persistent voiding symptoms 18 months after radical hysterectomy that were not present prior to her procedure. The most likely urodynamic findings will be:

A. normal compliance, detrusor overactivity, and fixed external sphincter tone.
B. decreased compliance, detrusor underactivity, and fixed external sphincter tone.
C. decreased compliance, detrusor overactivity, and normal external sphincter tone.
D. normal compliance, detrusor overactivity, and normal external sphincter tone.
E. decreased compliance, detrusor underactivity, and normal external sphincter tone.
ANSWER=B

Radical pelvic surgery can result in a lower motor neuron lesion and permanent voiding dysfunction. The most common urodynamic findings include an acontractile or underactive detrusor and fixed striated sphincteric tone (which can often lead to obstruction). In addition, this often results in a poorly compliant bladder. The smooth sphincter may be open and non-functional. Voiding dysfunction and a similar urodynamic pattern may be seen after other radical pelvic surgeries as well and the incidence of this occurring is: abdominoperineal resection: 20-68%; radical hysterectomy: 16-80%; anterior resection: 20- 25%; proctocolectomy: 10-20%.

91. During a salvage robotic radical prostatectomy, an inadvertent 1 cm rectal injury is encountered during the apical dissection. The next steps are wound irrigation, broadspectrum antibiotics, anal dilatation, and primary repair with:

A. TPN.
B. omental interposition.
C. suprapubic bladder drainage.
D. peritoneal interposition.
E. diverting colostomy.
ANSWER=E

Rectal injuries, although uncommon during primary radical prostatectomy (1-3% incidence), have a higher risk when the prostatectomy is performed in the salvage setting (6-1 5%). lntraoperative recognition and repair of the injury is crucial; In the previously irradiated pelvis; it is advisable to perform a temporary diverting colostomy at the time of primary repair due to the increased risk of wound breakdown and rectourethral fistula formation. The other options listed involve primary repair only without bowel diversion. TPN should not take the place of a diverting colostomy. Although these may be appropriate alternatives for many patients experiencing a rectal injury (especially primary repair with omental interposition) during primary radical prostatectomy, these are not advisable without a diverting colostomy in the patient who has received prior radiotherapy for prostate cancer.

92. A 16-year-old girl has severe calf pain and paraesthesia of her foot in the recovery room following a prolonged surgery in the dorsal lithotomy position. The calf pain is exacerbated with palpation and passive dorsiflexion of her foot. She has good capillary refill and palpable pulses in her foot. The next step is:

A. Doppler ultrasound of leg.
B. EMG of leg.
C. pelvic CT scan.
D. lumbar sacral spinal MRI scan.
E. intracompartmental pressure measurement.
ANSWER=E

Patients with prolonged surgery in the lithotomy position are at risk of developing compartment syndrome. This patient is demonstrating many of the early symptoms and signs of compartment syndrome including pain disproportionate to clinical findings, as well as pain on passive stretching of the involved compartmental muscle group, tender and tense calves, and numbness or paraesthesias. Late symptoms include loss of arterial pulses and paralysis. A high index of suspicion and rapid diagnosis and treatment is needed since compartment syndrome is a progressive condition resulting in rhabdomyolysis, nerve damage to the limb, renal failure, and can progress to multi-organ failure and death. Following identification of elevated intracompartmental pressures, immediate fasciotomies are the definitive treatment. Other considerations in this patient include a deep vein thrombosis or a neuropraxia, which can be evaluated with Doppler ultrasound or an EMG; however, given the clinical scenario and timing, compartment syndrome is more likely and if present requires treatment immediately. A CT or MRI scan would not be the initial investigations performed in a patient with this symptom complex.

93. A 55-year-old woman with urgency urinary incontinence has tried and failed behavioral modifications and Kegel exercises. Urinalysis and physical examination are negative. The next step is:

A. PVR.
B. mirabegron.
C. urodynamics.
D. cystoscopy.
E. sacral neuromodulation.
ANSWER=B

According to the AUA Overactive Bladder Guidelines, second line therapy (antimuscarinics or beta-3-agonists, such as mirabegron) is considered after failure of first line therapy (behavioral therapy). PVR may provide additional information. but is not part of the necessary next steps according to the Guidelines. The update to the Guidelines in 2014 added beta-3-agonists as part of the new treatment algorithm. It is premature to do urodynamics. Cystoscopy would likely be unremarkable in a patient with a negative urinalysis and is not indicated. Sacral neuromodulation is third line therapy (as

is onabotulinumtoxinA and tibia1 nerve stimulation) and would be considered after second line therapy has failed.

94. A new medication for treatment of nocturnal enuresis is studied in 1,000 children. Some subjects have daytime urinary incontinence and some have had UTIs. The correct statistical test for assessing efficacy of the medication is:

A. t-test.
B. Fisher's exact test.
C. analysis of variance (ANOVA).
D. multiple linear regression.
E. Pearson correlation coefficient.

ANSWER=C

This is an example of an analysis of variance (ANOVA) multi-variable model where there are two or more independent variables and one dependent variable. Another way of stating this is that ANOVA statistical designs are appropriate when a study compares three or more groups or repeated measures. The t-test is the analysis of independent measures. The most common t-test compares means from two independent or different groups. In the setting of a trial with only a binary variable, a Fisher's exact test specifically should be used when the number of subjects in any subgroup is less than five. Both the multi-factorial ANOVA and multiple linear regressions are multi-variable models. The ANOVA statistical tests are specific examples of a multiple regression; however, results reported from an ANOVA analysis are generally more intuitive, and for this reason ANOVA models are typically the first choice for analyzing data from group designs. The Pearson correlation coefficient is the appropriate test when assessing the relationship between two variables.

95. A 61-year-old woman with a continent cutaneous diversion develops cirrhosis. She is admitted with elevated transaminases and lethargy. The next step is:

A. I.V. sodium bicarbonate.
B. I.V. hydrocortisone.
C. I.V. calcium gluconate.
D. pouchogram.
E. continuous pouch drainage.

ANSWER=E

Ammonia excreted in the urine is readily re-absorbed when the urine is in contact with bowel epithelium. In patients with significant liver dysfunction and elevated ammonia levels, this re-absorption can contribute to the associated risk of encephalopathy. Therefore, in this woman with a continent reservoir and probable hepatic encephalopathy, the most appropriate next step is to place a catheter in her reservoir to maximize urinary drainage. Sodium bicarbonate, calcium gluconate, and hydrocortisone will not address hepatic encephalopathy. In the absence of clinical signs suggestive of pouch rupture, a pouchogram is unlikely to be informative.

96. A 16-year-old girl with a T3 spinal cord injury develops hypotension and tachycardia during PCNLfor a staghorn calculus. Preoperative urine culture was negative and she was given perioperative ampicillin and gentamicin. In addition to fluid resuscitation, the next step is:

A. ensure bladder drainage.
B. stop the operation.
C. place a larger access sheath.
D. transfusion.
E. decrease irrigation flow.

ANSWER=B

This patient is demonstrating symptoms of urosepsis. This may occur during fragmentation of a staghorn infectious stone despite a negative urine culture preoperatively. Cultures of "infection stone" fragments obtained from both the surface and inside of the stone have demonstrated that bacteria reside within the stone, thereby causing the stone itself to be infected. Continuation of the PCNL may only liberate more bacteria and endotoxin and result in further bacteremia. Urosepsis may be fatal. The procedure should be aborted immediately. Autonomic hyperreflexia may occur in patients with thoracic spine injuries and distended bladders but presents with hypertension and reflex bradycardia. The patient could have significant bleeding that would result in hypotension and tachycardia, and transfusion may be appropriate, but given the possibility for urosepsis, the next step would be to stop the operation. Placement of a larger access sheath would not be beneficial at this time, but it is important to have an access sheath that permits egress of irrigant. In this situation, the rate of irrigant flow will not affect her hemodynamic state.

97. An eight-year-old boy with prior ileocystoplasty reports catheterizing six times daily. Ultrasound shows new onset of bilateral moderate hydroureteronephrosis. Videourodynamics demonstrate detrusor pressures of 10 cm Hz0 at 300 mL and 40 cm H20 at 575 mL without VUR or detrusor overactivity. The next step is:

A. increase catheterization frequency.
B. placement of an indwelling catheter.
C. diuretic nuclear renal scan.
D. antimuscarinics.
E. bilateral percutaneous nephrostomy tubes.

ANSWER=B

The urodynamic study demonstrates good bladder capacity and compliance for his age, and there should be no need to begin anticholinergics. In this patient, the most common reason for development of bilateral hydronephrosis after successful ileocystoplasty is poor compliance with his catheterization schedule or technique. With poor catheterization compliance or technique, placement of an indwelling catheter, with subsequent renal ultrasound after a week or two, should demonstrate improved hydronephrosis. It will also permit easier determination of 24-hour urine volume if high urine output is expected. Increasing the frequency of catheterization does not address the concern of poor adherence to a catheterization schedule. If hydronephrosis persists, the next step may involve nuclear renal scan to rule out the unlikely development of bilateral upper tract obstruction.

98. A 37-year-old man develops an abdominal bruit one week after needle biopsy of his left kidney. Arteriogram demonstrates prompt contrast filling of the left renal vein. Blood pressure and heart rate are normal. The next step is:

A. observation.
B. warfarin.
C. repeat arteriogram in 48 hours.
D. embolization.
E. intravascular stent.

ANSWER=A

Approximately 75% of patients with renovascular fistulae have an abdominal bruit. The management of renal arteriovenous fistulae depend on the cause of the fistula and the associated clinical manifestations. Fistulae due to renal cell carcinoma warrant nephrectomy. Approximately 70% of fistulae occurring after needle biopsy of the kidney close spontaneously within 18 months, thus, expectant management is an appropriate first step. Warfarin is not indicated as this patient does not have a thrombosis. Vascular stent or embolization would not be the appropriate initial step without first observing the fistula in an attempt for spontaneous closure.

99. A 34-year-old woman has a 3 cm right adrenal mass on ultrasound. Endocrine evaluation is normal. The next step is:

A. repeat ultrasound in six months.
B. CT scan without contrast.
C. CT scan with contrast.

D. gadolinium-enhanced MRI scan.
E. biopsy.
ANSWER=B
Ultrasonography is a suboptimal imaging modality for detecting and fully characterizing adrenal lesions. An unenhanced CT scan is the recommended first study to evaluate an adrenal lesion as this imaging modality is easily interpretable and provides perhaps the best assessment of intracellular lipid. Non-contrast CT scan can diagnose an adrenal adenoma in more than 70% of cases (specifically, low attenuation, < 10 Hounsfield units [HU]) on unenhanced CT which corresponds to high intracytoplasmic lipid content and is diagnostic for an adrenal adenoma. 98% of lesions with an attenuation of 10 HU or less on non-contrast CT are adrenal adenomas. Less than 30% of adrenal adenomas are lipid-poor (also known as "atypical adenomas") and have an attenuation of > 10 HU. For such lesions which demonstrate an attenuation of > 10 HU, additional radiological evaluation can be performed including CT washout study (consisting of non-contrast, one-minute postcontrast, and 15 minutes post-contrast scans) to help discriminate lipid poor adenomas from other adrenal lesions. The diagnostic information from a single-phase enhanced CT scan for adrenal lesions is quite limited, as there is considerable overlap in post-contrast attenuation of adenomas and non-adenomas. Gadolinium-enhanced MR washout studies do not exhibit the diagnostic strength of iodine-based CT washout studies, and are not commonly employed. When MRI is used, opposed phase chemical-shift MR imaging to evaluate for intracellular lipid content can help distinguish an adenoma from other adrenal lesions. The role of adrenal mass biopsy is quite limited, as biopsies cannot reliably distinguish adenomas from adrenal carcinomas. Biopsies are primarily indicated in patients with a separate primary malignancy to identify the presence/absence of metastatic disease in the adrenal gland, and are not recommended prior to appropriate radiographic characterization (i.e., non-contrast-CT). It would not be appropriate to watch a 3 cm adrenal mass without further imaging characterization using non-contrast CT scan, which, in addition to the limitations of ultrasound as an imaging modality for adrenal lesions, render a repeat ultrasound in six months not a good option here.

100. A 78-year-old man has a 3 cm solid enhancing mass at the posterior aspect of his right kidney. Biopsy reveals clear cell RCC, grade 3. His creatinine is 2.1 mg/dL. He is treated with percutaneous cryoablation. Imaging .one year later demonstrates persistent central enhancement of the tumor bed. The next step is:
A. observation.
B. renal mass biopsy.
C. repeat cryoablation.
D. partial nephrectomy.
E. radical nephrectomy.
ANSWER=C
Local recurrence after tumor ablation represents treatment failure, and occurs in 3-10% after percutaneous cryoablation and 5-20% after radio frequency ablation. Recurrence or persistence of tumor is usually evidenced by persistent central enhancement in the tumor bed. Most local recurrences can be managed by repeat ablative therapy. in this patient with renal insufficiency and tumor location amenable to repeat cryotherapy, that would be the repeat treatment of choice. Observation would be an option, but this tumor is high-grade, and therefore, warrants complete and/or curative treatment. Biopsy is not necessary given the previously positive biopsy and persistent enhancement of the lesion. Partial nephrectomy would be more challenging after cryoablation and would likely result in more renal compromise than repeat cryotherapy, and radical nephrectomy is likely to result in the requirement for dialysis.

101. During a sacral neuromodulation first stage trial under general anesthesia, a 48-yearold man has a foramen needle placed in 53 under fluoroscopic guidance on both the left and right sides without a motor response. The next step is:
A. use bipolar settings.
B. change stimulator pulse width.
C. check for neuromuscular blockade.
D. move lead to 52.
E. abort case.
ANSWER=C
One must assure that this patient has muscle twitches and is not under neuromuscular blockade. Placing the lead in S3 without responses carries the risk of the lead not working or untoward stimulation patterns. Changing pulse width and bipolar settings would not help. Moving the lead to 52 is not standard therapy and would not stimulate the appropriate nerves. Aborting the case would be premature at this point and would not benefit the patient.

102. An 18-year-old man has gynecomastia. He is tall, thin with poor muscle development, and has sparse facial hair. Both testicles are small and firm. He most likely has:
A. normal estradiol levels.
B. normal LH levels.
C. increased risk of non-germ cell testicular tumors.
D. normal cognitive skills.
E. absence of Leydig cells on testicular biopsy.
ANSWER=C
This patient has Klinefelter's syndrome based on physical description and testicular exam. The most common karyotype will be 47,XXY. This is associated with hyalinization of seminiferous tubules, leading to small firm testicles and severe subfertility. Leydig cells are present, but testosterone production is abnormally low, with elevated estradiol levels. This leads to poor secondary male sexual development and gynecomastia. These patients are at increased risk of extragonadal germ cell tumors, Leydig and Sertoli cell testicular tumors, and have a marked increased risk of breast cancer, requiring lifelong surveillance after puberty. Recent data has demonstrated. decreased verbal skills, and frontal executive function and cognitive skills in Klinefelter's patients. .

103. Two months after a robotic prostatectomy and lymphadenectomy, a 65-year-old man , has progressively increasing urinary frequency. His PVR is 25 mL and his urinalysis shows 0-3 RBUhpf and leukocytes. He has failed a trial of tolterodine. The next step is to obtain a urine culture and:
A. pelvic floor physiotherapy.
B. imipramine.
C. empiric antibiotics.
D. pelvic CT scan.
E. cystoscopy.
ANSWER=D
Patients who present with new onset, worsening irritative voiding symptoms and I incontinence following uneventful robotic prostatectomy can often be passed off as experiencing normal postoperative recovery of urinary continence and be prescribed pelvic I physiotherapy and anticholinergic medications. However, in the setting of having undergone a pelvic lymphadenectomy, the possibility of a pelvic lymphocele should be ruled-out. Pelvic lymphoceles can cause compression of the bladder resulting in reduced capacity and increased urinary frequency and urgency. Further treatments aimed at his LUTS would be considered if a lymphocele is not found on imaging. Antibiotics would be initiated if the urine culture is positive. There is no indication for cystoscopy at this time.

104. A 16-year-old girl with a bladder neck reconstruction, augmentation cystoplasty, and appendicovesicostomy is unable

to catheterize for 12 hours. A catheter cannot be passed via urethra or appendicovesicostomy. Ultrasound demonstrates a distended bladder. The next step is:
A. percutaneous aspiration of bladder.
B. cystoscopy via urethra.
C. cystoscopy via appendicovesicostomy under general anesthesia.
D. open suprapubic tube placement.
E. revision of appendicovesicostomy.
ANSWER=A
The flap valve mechanism of the appendicovesicostomy can result in occlusion with overdistention and elevated bladder pressures. Percutaneous aspiration in this patient may result in decompression and subsequently permit catheter passage via the appendicovesicostomy. In some patients, this may be performed under local anesthesia with sedation and avoid the need for general anesthesia. Cystoscopy would likely require general anesthesia and can be difficult after a sling procedure and bladder neck reconstruction. Endoscopy of the appendix in this situation is less likely to be successful with a full bladder and runs the risk of injury to the appendix. Open suprapubic tube placement may be required, but is more invasive than percutaneous aspiration. Revision of the appendicovesicostomy is premature in this patient.

105. A 54-year-old man has chemoradiation for a cT2 urothelial carcinoma of the bladder. After two cycles of cisplatin and 40 Gy XRT, he has a mid-treatment TURBT. Pathology reveals high-grade TI urothelial cancer. The next step is:
A. repeat TURBT.
B. complete planned chemoradiation.
C. change to dose dense M-VAC chemotherapy.
D. induction BCG.
E. radical cystoprostatectomy.
ANSWER=E
Bladder preservation strategies with use of either radical TURBT and chemotherapy or trimodality therapy with TURBT, chemotherapy, and radiation therapy, have been utilized in many clinical scenarios, usually reserved for elderly patients with more comorbidities and limited life expectancy. However, these strategies are being increasingly utilized in the healthier population as the outcomes for bladder preservation in certain subsets appear favorable. Additionally, various strategies of types of chemotherapy and radiation doses have been utilized. The RTOG (Radiation Therapy Oncology Group) has defined various protocols for chemoradiation and bladder preservation. Typically, patients receive two cycles of chemotherapy with concomitant radiation therapy, and then undergo-a mid-cycle transurethral resection for response assessment. If there is persistent disease, then the recommendation for cystectomy is given at that time. If there appears to be an adequate response, then completion of chemoradiation therapy is recommended. In this case, persistent TI disease at the mid-cycle evaluation indicates an inadequate response to induction therapy and salvage radical cystoprostatectomy is indicated. Repeat transurethral resection after finding TI disease at mid-cycle is not recommended, nor is changing chemotherapy or increasing planned radiation' therapy dosing. Completing standard chemoradiation therapy protocols in the setting of active invasive disease would result in delayed treatment of resistant disease. BCG has been used to treat delayed recurrence of non-muscle invasive bladder cancer after trimodal therapy, but not when this occurs at the mid-treatment evaluation.

106. Fifteen years after bladder augmentation for a neurogenic bladder, a 53-year-old man develops urinary incontinence that does not improve despite antimuscarinics and more frequent CIC. Urinalysis is negative and renal bladder ultrasound is normal. The next step is:
A. videourodynamics.
B. cystoscopy.
C. onabotulinumtoxinA injections.
D. male sling.
E. revision of augmentation cystoplasty.
ANSWER=A
Videourodynamics would allow for evaluation of bladder storage function (detrusor overactivity, compliance) and competence of the outlet. These findings would allow for appropriately directed therapy, such as onabotulinumtoxinA injections into the native bladder, augment revision, and outlet enhancing procedures. Cystoscopy can be performed if videourodynamics are normal.

107. Acute bleeding after ligation and division of the renal hilum during left nephrectomy is most commonly from the:
A. posterior renal vein.
B. anterior renal artery.
C. gonadal vein.
D. lumbar vein.
E. adrenal vein.
ANSWER=D
The most common source of bleeding after division of the renal hilum on the left is a lumbar vein. The lumbar vein lies posteriorly as it inserts into the renal vein. When ligation is too proximal towards the inferior vena cava, this vein can be encountered. The testicular and adrenal vein may cause bleeding but usually are well visualized. Anatomically, the posterior and anterior branches of the renal artery are included with ligation of the hilum unless this occurs too close to the kidney.

108. An 80-year-old man with severe coronary artery disease has bothersome nocturia. DRE reveals a large, smooth prostate. Urinalysis is normal and PVR is 140 mL. The next step is:
A. observation.
B. voiding diary.
C. serum PSA.
D. oxybutynin.
E. initiate desmopressin.
ANSWER=B
Given that the symptoms are bothersome, observation is not appropriate. There are several therapies that are non-invasive and safe even in an elderly man with significant comorbidities. When the predominant urinary symptom is nocturia, AUA Guidelines on BPH recommend that a voiding diary (frequency-volume chart) be completed. One should consider that nocturia may represent nocturnal polyuria or nocturnal frequency, with two different treatment pathways. One pathway would be to reduce fluid consumption in the evening, but it is premature to recommend that without first performing a voiding diary. Serum PSA is part of the guideline-recommended evaluation of LUTS, but is not indicated when life expectancy is less than ten years. Desmopressin and oxybutynin should not be instituted without first performing a voiding diary. In addition, oxybutynin would be a suboptimal choice in a patient of this age and with an elevated PVR.

109. A 57-year-old woman has persistent urgency urinary incontinence despite antimuscarinic therapy. Her POP-Q exam shows: Aa: 0; Ba: 0; C: -6; Bp: -2; and Ap: -2. Her PVR is 75 mL and urinalysis is negative. The next step is:
A. pessary trial.
B. CIC.
C. sacral neuromodulation.
D. cystocele repair.
E. sacrocolpopexy.
ANSWER=A
Pessary trial is a minimally invasive way to help discern the next step in this patient whose POP-Q examination is consistent with anterior vaginal wall laxity to the hymenal ring. If the urgency

urinary incontinence improves, then one can consider continued pessary use or prolapse repair to more definitively correct her problem. If the pessary does not help, one can consider sacral neuromodulation or other options for refractory overactive bladder. Self-catheterization would be premature to consider, especially with a PVR of 75 mL. Since she does not have symptomatic- prolapse (bulge, pressure), cystocele repair would be best considered after some assurance that the prolapse correction would result in improvement in her LUTS. Sacrocolpopexy is not indicated as this is for apical prolapse and based on her POP-Q, she does not have apical laxity with a C point of -6.

110. A three-month-old boy had an unstented dismembered pyeloplasty. One week later, he has continued low-grade fever and modest drainage from his flank incision. Ultrasound demonstrates a large blood clot in the renal pelvis. The next step is:

A. re-evaluate in one week.
B. renal scan with Lasix.
C. placement of ureteral stent.
D. nephrostomy tube placement.
E. re-exploration and repair anastomotic leak.
ANSWER=D.

Persistent urinary drainage after an unstented pyeloplasty is common, and will often require intervention. When this is associated with a large blood clot, and likely edema at the anastomosis, the kidney will need early drainage until the bleeding resolves and edema improves. This is best managed with a nephrostomy tube, as stent placement in this young infant would likely result in stent occlusion from the renal pelvic blood clot. In the majority of cases not associated with an occlusive blood clot, the leak will resolve spontaneously, so observation is the best approach in the early postoperative period in these patients. If the leak is persistent and not associated with a consolidated clot, it would most likely resolve with retrograde stent placement. Renal scan would not change management at one week. Early re-exploration would also not be indicated in this setting that is usually able to be managed with a minimally invasive approach.

111. An 85-year-old afebrile man with a chronic suprapubic tube has r 100,000 CFUImL of Candida on a urine culture. The funguria persists after suprapubic tube change. The next step is:

A. repeat culture in one month.
B. renal ultrasound.
C. fungal blood cultures.
D. oral fluconazole.
E. oral flucytosine.
ANSWER=B

Candiduria is a common condition, particularly in patents with urinary catheters, diabetes, and recent antibiotic use. Candiduria is often asymptomatic and usually follows a benign clinical course. In patients with indwelling catheters, the catheter should be changed and repeat culture should be performed. Persistent candiduria requires work-up for predisposing factors, including PVR assessment to exclude urinary retention, and renal ultrasound to look for hydronephrosis, urolithiasis, fungus balls, and renal abscesses. If no predisposing factors are identified, then observation with repeat culture is appropriate (one to three months). Patients with symptomatic candida cystitis should be treated. Blood cultures for fungi should be obtained in critically ill ICU patients with persistent funguria. First-line therapy is oral fluconazole, 200 mg daily for 14 days. Nearly all urine isolates of Candida albicans and most isolates of Candida glabrata are susceptible to fluconazole. In patients with resistant strains, flucytosine or Amphotericin B may be used.

112. A 65-year-old man has decreased force of stream, hesitancy, and frequent small volume voids. DRE reveals a 45 gram benign prostate and urinalysis is negative. Serum PSA is 2.5 ng/mL and AUA Symptom Score is 21. Before starting medical therapy, he should have:

A. no additional work-up.
B. cystoscopy.
C. uroflowmetry.
D. PVR.
E. pressure-flow urodynamics.
ANSWER=A

The following are the recommended tests for basic management of LUTS in men per the AUA BPH Guidelines: relevant medical history, assessment of LUTS severity and bother (i-e., AUA-Symptom Score index), and physical examination including DRE and urinalysis. He has satisfied criteria for being offered treatment options. Flow rate, PVR, and pressure-flow studies are optional tests, and would be helpful for persistent bothersome LUTS after basic management has failed. Assessment of prostate size with cystoscopy or other modalities, such as TRUS and MRI scan, should be done if surgical intervention is to be considered.

113. A 70-year-old man with Parkinsonian tremors and a history of a myocardial infarction has a 7 cm penile urethral stricture after TURP. The next step is:

A. daily urethral self-dilation.
B. permanent perineal urethrostomy.
C. augmentation urethroplasty with penile skin flap.
D. augmentation urethroplasty with oral mucosa graft.
E. two-stage urethroplasty.
ANSWER=B

The AUA Guidelines for male urethral stricture call attention to permanent perineal urethrostomy as an option for men with urethral stricture disease who cannot tolerate self-dilation and/or are not good candidates for formal urethroplasty due to comorbidities, advanced age, or urethral disease such as lichen sclerosus. Daily self-dilation would be difficult in this man with Parkinsonian tremor. More complex urethral reconstruction surgeries would offer him little advantage over perineal urethrostomy and expose him to increased perioperative risks and complications.

114. A 62-year-old man recovering from a viral upper respiratory infection has a urinalysis revealing 5-6 RBUhpf. Two weeks later, he is healthy and repeat urinalysis shows 1-2 RBUhpf. The next step is:

A. no further testing.
B. repeat urinalysis in one year.
C. serum and urine creatinine.
D. voided urine cytology.
E. cystoscopy and CT urogram.
ANSWER=A

According to the 2013 AUA Guideline on asymptomatic microscopic hematuria (AMH), evaluation of AMH should include a careful history and physical examination to identify causes that may not require diagnostic work-up. These include vigorous exercise, presence of preexisting medical-renal disease, presence of infection or viral illness, recent menstruation, exposure to trauma, or recent urological procedures. These potential "benign" causes should be ruled-out or treated, and urinalysis repeated, prior to proceeding with diagnostic evaluation. This patient is recovering from a viral illness. If repeat analysis is negative for AMH (in this case 1-2 RBUhpf), no further evaluation is warranted. Serum and urine creatinine, voided urine cytology, cystoscopy, and CT urogram are not indicated. Annual urinalysis is not recommended as part of routine wellness care for an otherwise healthy 62-year-old male.

115. Uric acid stone formers should obtain their dietary protein intake from vegetables and:

A. soy.
B. eggs.

C. fish.
D. chicken.
E. dairy products.
ANSWER=E
Urinary uric acid is derived from both endogenous and exogenous sources. Diet-derived purines account for an estimated 30% of urinary uric acid. The typical intake of purines in the United States averages 500-1 500 mg/day, including both animal and plant sources, although the latter may account for only 20% of the total in most cases. Uric acid stone forming patients may benefit from limiting " high" and " moderately-high" purine containing foods. Although the reported purine content of foods varies, "high" purine foods are generally considered those containing more than 150 mg/3-ounce serving. These include, specific fish and seafood (anchovies, sardines, herring, mackerel, scallops and mussels), water fowl, organ meats, glandular tissue, gravies and meat extracts. "Moderately-high" sources of purines include other shellfish and fish, game meats, mutton, beef, pork, poultry, and meat-based soups and broths, and soy. Note that an individual may never or only rarely consume "high purine" foods but may habitually consume large portions of foods in the "moderately-high" category. Finally, uric acid crystal formation and growth occur in more acidic urine. Thus, patients with a history of uric acid stones should be counseled to increase the alkali load and decrease the acid load of their diet in an effort to increase urine pH and reduce urinary acidity. Foods conferring an alkali renal load include most fruits and vegetables. Whole milk and yogurt are acid-neutral. Meats, fish, seafood, poultry, cheese, eggs, and grains all confer an acid load.

116. A three-year-old boy has a 12 cm solid left renal mass with a normal right kidney. During left nephrectomy, the tumor capsule is ruptured with minimal tumor spillage, but there is a complete resection. Pathology is favorable histology WiIms' tumor with negative lymph nodes. The next step is:
A. XRT.
B. dactinomycin, vincristine, and doxorubicin.
C. dactinomycin, vincristine, and XRT.
D. dactinomycin, vincristine, doxorubicin, and XRT.
E. cyclophosphamide, vincristine, doxorubicin, and etoposide.
ANSWER=D
Any tumor spillage increases the tumor stage to at least stage 3. National Wilms' Tumor Study - 3 (NWTS-3) demonstrated that for favorable-histology disease stage 3, 10.8 Gy of abdominal irradiation was as effective as 20 Gy in preventing abdominal relapse if doxorubicin was added to vincristine and dactinomycin. Unfavorable histology with diffuse anaplasia would require additional agents including cyclophosphamide and etoposide.

117. A 34-year-old man with Crohn's disease has three months of suprapubic pain, urinary frequency, dysuria, and tenesmus. Cystoscopy reveals erythema and small papillary changes at the right trigone. Barium enema is normal. The next step is:
A. placement of urethral catheter.
B. TPN, bowel rest, and antibiotics.
C. CT scan of abdomen and pelvis.
D. colonoscopy.
E. TUR of bladder lesion.
ANSWER=C
The classic presentation of vesicoenteric fistula consists of suprapubic pain, urinary frequency, dysuria, and tenesmus. Colonoscopy and barium enema studies are, in general, less likely to demonstrate the fistula. Cystoscopy has the highest yield in identifying a potential lesion, with some type of abnormality noted on endoscopic examination in more than 90% of cases. However, the findings on cystoscopy are often nonspecific and include localized erythema, papillary, or bullous changes. A definitive diagnosis using cystoscopy can be made in only 35% to 46% of cases. CT scan with contrast is the optimal radiographic modality to demonstrate a vesicoenteric fistula and can also often identify-the cause of the fistula (e.g., colon cancer, inflammatory bowel disease, diverticulitis), as well. TUR or bladder biopsy in a patient with inflammatory bowel disease could potentially increase the fistula size. Treatment options such as catheter placement and hyperalimentation would be considered after the CT scan is obtained and a diagnosis is made.

118. PARP inhibitors (poly-adenosine diphosphate [ADPI-ribose polymerase inhibitors) target tumors with defects in the pathway involving:
A. androgen regulated growth.
B. AKTJmTOR.
C. DNA repair.
D. mitotic spindle generation.
E. tyrosine kinase receptor signaling.
ANSWER=C
PARP inhibitors (poly-adenosine diphosphate [ADPI-ribose polymerase inhibitors) have shown activity in tumors with defects in DNA repair capabilities. Specifically, the PARP inhibitor olaparib is approved for the treatment of ovarian cancer with a BRCAIR mutation. PARP inhibitors have produced durable responses in patients with metastatic castration-resistant prostate cancer associated with BRCA2 germline mutations and in the subset of patients with metastatic castration-resistant prostate cancer and somatic gene mutations in DNA repair genes (BRCAIIZ, ATM, Fanconi's anemia genes and CHEK2) as detected by next generation sequencing. Drugs such as abiraterone and enzalutamide target the androgen pathway. The mTOR inhibitors temsirolimus and everolimus are approved for the treatment of metastatic kidney cancer. Microtubule inhibitors, including the taxanes (docetaxel), target the mitotic spindle. Tyrosine kinase inhibitors, such as sunitinib, pazopani b, and sorafeni b, target tyrosine kinase receptor signaling and are all approved for the treatment of metastatic renal cancer.

119. A potential living donor for renal transplantation should be disqualified by the presence of:
A. BMI of 28.
B. GFR of 90 mUminl1.73 m2.
C. schizophrenia.
D. age of 19 years.
E. hypertension controlled by hydrochlorothiazide.
ANSWER=C
Donors should be healthy individuals, without diseases that would increase the risk of kidney failure, acute symptomatic infections, ongoing substance abuse, and/or psychiatric disorders such as schizophrenia. GFR should be assessed and be > 80 mL/min. Ideally, BMI should be < 30. Donors must be over age 18 years. In recent years, some transplant centers have accepted donors who have hypertension that is well controlled with a single antihypertensive medication.

120. The safest Veress n**eedle insertion point for pelvic laparoscopy in a patient with a prior history of midline laparotomy is:**
A. supraumbilical.
B. infraumbilical.
C. below the right costal margin in the midclavicular line.
D. below the left costal margin in the midclavicular line.
E. below the costal margin in the midline.
ANSWER=D
Palmer's point is used for access when intraperitoneal adhesions are suspected. This is 3 cm below the left costal margin in the midclavicular line. Placement of the Veress needle in the other locations depends on patient position and surgeon preference in

patients without prior history of laparotomy. Veress n**eedle** placement should not be done in the midline for any patient with a prior midline incision in that area. Veress needle insertion below the right costal margin risks damage to the liver.

121. In a patient with a newly diagnosed pT2NOMO squamous cell carcinoma of the penis, the rationale for obtaining an inguinal ultrasound and fine needle aspiration of any suspicious lymph nodes prior to performing a radio-guided dynamic sentinel node dissection is to:

A. decrease the number of false positive dissections.
B. decrease the number of false negative dissections.
C. stage the pelvic lymph nodes.
D. map nodes to be selectively excised at sentinel node dissection.
E. allow a decrease in the amount of radiotracer used at sentinel node dissection.
ANSWER=B

Dynamic radio-guided sentinel node dissection, as opposed to an anatomical or Cabanas sentinel node dissection, when combined with preoperative inguinal ultrasound [and if needed fine-needle aspiration (FNA)] has been found to have a low false negative rate (7%) and less morbidity than an inguinal node dissection when performed in high volume centers. The purpose of performing the initial ultrasound and FNA is to decrease the number of false negative dissections, as in the initial experience dynamic sentinel node dissection failed to identify nodes that were extensively involved with metastatic cancer. The reason for this is that when the sentinel node is extensively involved with cancer, the lymphatic drainage is obstructed so the radio tracer and isosulfan blue drains to an alternate node or does not map at all. The ultrasound and FNA are an effective way to identify these extensively involved nodes but will not identify the microscopically involved sentinel node that the isosulfan blue and radio-colloid locate. The ultrasound and FNA will have no effect on the number of false positive dissections. Ultrasound can evaluate inguinal nodes, but this modality is much less sensitive for the evaluation of pelvic nodes. Pelvic nodes are better staged by cross sectional imaging such as MRI or CT scan. A patient that is identified on preoperative ultrasound-guided FNA to have metastatic cancer in the inguinal nodes would proceed directly to an inguinal node dissection, bypassing sentinel node dissection altogether. If the patient is to have a dynamic sentinel node dissection, the dose of radiotracer injected will not be altered based on the results of the ultrasound.

122. A 59-year-old post-menopausal woman has complaints of bothersome stress uririary incontinence, vaginal bleeding and a vaginal bulge. POP-Q exam shows: Aa: 0; Ba:+2; C:+2; Ap: 0; Bp: 0; D: 0; and TVL: 8 cm. Her urinalysis is negative and PVR is 90 mL. She desires uterine preservation if surgical repair is required. The next step is:

A. dynamic MRI scan.
B. urodynamics.
C. endometrial biopsy.
D. cystocele and rectocele repair with sling.
E. sacrouteropexy and sling.
ANSWER=C

This patient has bothersome prolapse symptoms; however, the vaginal bleeding also needs to be addressed. While one may assume her vaginal bleeding is due to the prolapse, this may not always be the case and mandates an endometrial biopsy. Uterine preservation in this setting, without preoperative assurance of the absence of uterine pathology, could have major consequences. MRI scan would not be a sufficient evaluation for this. Urodynamics would likely not add much to the clinical scenario as she already has a known history of stress incontinence. The prolapsed compartments would need to be addressed with a sacrouteropexy if she wanted to preserve the uterus, provided she does not have abnormal uterine pathology. .

123: Dyspareunia in post-menopausal women is most commonly due to:

A. estrogen deficiency.
B. pelvic irradiation.
C. uterine leiomyoma.
D. endometriosis.
E. neuroproliferative vestibulodynia.
ANSWER=A

Between 20% and 57% of adolescent and young adult women (c 25 years of age) report pain with intercourse. Sexual pain in older women is most commonly due to vulvovaginal atrophylgenitourinary symptoms of menopause. Estrogen deficiency related to menopause (surgical or natural) is the most common cause of vulvovaginal atrophy in this population. Vaginal atrophy secondary to pelvic radiation has also been reported in the literature. Uterine leiomyoma, endometriosis, and neuroproliferative vestibulodynia are less common causes of dyspareunia.

124. The checkpoint inhibitors nivolumab and atezolizumab:

A. inhibit the GIIS cell cycle transition by interfering with growth factor signal transduction.
B. inhibit spindle construction during cell division.
C. block PD-1 or PD-L1 receptors allowing T-cell activation.
D. stimulate cytokine production enhancing natural killer cell activity.
E. block repair of single strand DNA breaks leading to increased apoptosis.
ANSWER=C

Checkpoint inhibitors are a new class of drugs that act through the PD-1 and PD-L1 (Programmed death receptor 1 and Programmed death receptor ligand 1) receptor/ligand complex which normally function to inhibit T-cell response. Inhibition of these receptors allow the immune system to recognize and kill tumor cells more effectively. Tyrosine kinase inhibitors, such as sunitinib and pazopanib, target cell surface receptors that are important for signal transduction leading to activation of cellular growth pathways. Mitotic inhibitors, such as taxanes (docetaxel and paclitaxel), inhibit microtubule formation in the mitotic spindle which interferes with chromosome separation during mitosis. Cytokines, such as interleukin-2 and interferon, are small molecules that stimulate the immune system and T-cell function to more effectively target tumor cells. Poly (ADP-ribose) polymerase (PARP) inhibitors, such as olaparib, cause multiple double strand breaks, and in tumors with BRCAI and BRCA2. mutations, these double strand breaks cannot be efficiently repaired, leading to apoptosis.

125. A 16-year-old boy with a superficial palpable extra-testicular mass in the scrotum is undergoing ultrasound evaluation. The highest resolution imaging is obtained using:

A. a linear transducer.
B. a sector transducer.
C. lower frequency.
D. higher gain.
E. pulsed wave Doppler.
ANSWER=A

Linear transducers produce the highest resolution. Sector transducers produce lower resolution but can scan a wide region with a small footprint. Higher frequencies produce better resolution than lower frequency transducers, although the higher frequency has lower tissue penetration and is best for superficial structures. The gain increases the brightness of the image but not the resolution. Pulsed wave Doppler provides velocity information on a timeline from moving objects such as that associated with blood flow.

126. Obtaining sex hormone binding globulin (SHBG) levels is helpful in the evaluation of hypogonadism associated with:

A. hepatic cirrhosis.
B. ischemic priapism.
C. Peyronie's disease.
D. stuttering priapism.
E. non-ischemic priapism.
ANSWER=A
Total testosterone is the recommended initial test to diagnose hypogonadism. Conditions that increase SHBG (aging, hyperthyroidism, and hepatic cirrhosis), or that decrease SHBG (obesity, diabetes mellitus, and glucocorticoid use), affect testosterone bioavailability. There is no indication for SHBG measurement in various forms of priapism or Peyronie's disease.

127. Following an altercation, a 25-year-old man with a history of cocaine abuse complains of severe penile pain and a rigid erection for the past six hours. Physical examination is notable for rigid corpora cavernosa and relatively soft glans and corpus spongiosum. A corporal blood gas reveals a PO2 of 25 mm Hg, PC02 70 mm HG, and pH 7.1 5, with crankcase oil appearance. The next step is:
A. oral terbutaline.
B. oral phenylephrine.
C. penile color duplex Doppler ultrasound.
D. corporal injection or irrigation with alpha-adrenergic agents.
E. needle aspiration of the corpora.
ANSWER=E
Oral terbutaline and phenylephrine are not recommended in the management of acute ischemic priapism (> 4 hours) as oral therapies are generally deemed ineffective. Decompression of the corpora cavernosa by aspiration is the recommended initial treatment of ischemic priapism and is the best choice for immediate softening of the erection and pain relief. This treatment alone may be successful in relieving the priapism in 36% of cases and may not only be diagnostic, but therapeutic as well. A corporal blood gas evaluation by aspiration-is recommended in the emergency evaluation of priapism and can differentiate ischemic from non-ischemic priapism. Deoxygenated blood with a "crankcase oil" appearance is often observed upon aspiration in ischemic priapism. Blood gas testing will document pH, P02, and PC02. If the history suggests penile or perineal trauma, or if the corporal aspirate reveals we1 I-oxygenated blood, penile color duplex Doppler ultrasound (CDU) should be initiated. There is no need for emergent CDU in this case as the findings are consistent with an ischemic presentation.

128. A 35-year-old healthy man will initiate efforts for conception with his 30-year-old healthy wife next month. He arranged for his own semen analysis that revealed normal results except for 1 % normal sperm morphology by strict criteria. Their next step is:
A. to attempt to conceive by natural means.
B. intrauterine insemination.
C. in vitro fertilization.
D. in vitro fertilization with ICSI.
E. donor sperm.
ANSWER=A
The couple should be advised to attempt to conceive by natural means. Strict morphology is not a consistent predictor of fertility, and for this reason, the AUA states that strict morphology "should not be used in isolation to make prognostic or therapeutic decisions". While this couple could pursue assisted reproductive techniques, such as intrauterine insemination or in vitro fertilization (without or with ICSI), they might well have success with efforts by natural means. An isolated severely low sperm morphology result is not by itself an indication to proceed to donor sperm.

129. In comparison to two-piece inflatable penile prostheses, the three-piece inflatable implant:
A. inflates with fewer squeezes of the pump.
B. allows for a smaller incision of the tunica albuginea.
C. is less flaccid when deflated.
D. does not require a separate reservoir.
E. results in an erection with a less natural feel.
ANSWER=B
Two-piece inflatable penile implants do not require placement of a separate reservoir, an attribute that may be useful in cases when placement of the reservoir is challenging because of colostomy, ileostomy, kidney transplant, or extensive pelvic surgery. These devices require fewer squeezes of the pump to reach full capacity. A disadvantage is that the pump is very small and hard, making it difficult for patients to manipulate. Although simpler to insert in many respects, two-piece devices paradoxically require a larger tunical incision. Three-piece implants have a more natural feel, being more rigid when full and more flaccid when empty,

130. A 32-year-old man, who previously required left orchiectomy due to torsion as a child, has a right radical orchiectomy for a pT2 pure seminoma. Two weeks after orchiectomy, his previously normal beta-hCG is elevated. Serum AFP, as well as CT scans of chest, abdomen, and pelvis, are normal. The next step is:
A. PET scan.
B. exogenous testosterone and repeat markers.
C. etoposide-cisplatin chemotherapy.
D. retroperitoneal XRT.
E. RPLND.
ANSWER=B
Removal of both testes, with the attendant decline of testosterone production, results in an increased pituitary secretion of LH due to loss of the negative feedback loop. In turn, cross-reactivity of LH with beta-hCG may cause falsely positive detections of beta-hCG elevation. As such, the administration of exogenous testosterone should suppress pituitary gonadotropin secretion, and thereby return the measured serum hCG to normal, if in fact the cause of the noted beta-hCG elevation is LH cross-reactivity. Given the relatively low associated risk, this approach should represent the next step in evaluation for this patient. If the beta-hCG returns to normal after exogenous testosterone, the patient should be considered to have stage 1B seminoma, for which the recommended management is surveillance. Considering the potential toxicities of systemic chemotherapy, determining a potential false-positive elevation in markers would be recommended prior to initiating such treatment. Retroperitoneal radiotherapy, while an option for stage 1B seminoma, should not be initiated prior to investigating the marker elevation further as well, and moreover, surveillance has become the recommended strategy for patients with stage IAIB seminoma. The role of PET imaging in testicular cancer is restricted to the evaluation of residual masses after chemotherapy for seminoma which are greater than 3 cm. RPLND is currently not indicated for clinical stage 1 seminoma.

131. A 27-year-old man with a mutation of SLC7A9 and a proximal tubule transporter has recurrent kidney stones despite increased fluids and potassium citrate. The next step is:
A. pyridoxine.
B. thiazide diuretic.
C. xanthine oxidase inhibitor.
D. alpha-mercaptoproprionylglycine.
E. acetohydroxamic acid.
ANSWER=D
Cystinuria, the most common monogenic cause of kidney stones, is caused by mutations of SLC7A9 or SLC3A1, the protein products of which together constitute the proximal tubule's transporter mediating reabsorption of filtered cystine. The primary treatment approach is hydration and alkalinization therapy, followed by

chelation therapy with alpha-mercaptoproprionylglycine (tiopronin) or d-penicillamine. Pyridoxine is used to help management of hyperoxaluria in primary hyperoxaluria. Thiazide diuretics are used in conditions of hypercalciuria. Xanthine oxidase inhibitors are used in cases involving uric acid, such as hyperuricemia or hyperuricosuria refractory to dietary purine reduction recommendation. Acetohydroxamic acid is used in cases of infection stones when patients are not appropriate candidates for surgical intervention.

132. A 61-year-old man with no prior history of bladder cancer has a right laparoscopic nephroureterectomy for a 3 cm renal pelvis tumor. No lymph nodes are removed during surgery. Pathology shows an invasive high-grade urothelial carcinoma involving the lamina propria. The bladder cuff margin is negative for tumor. His postoperative estimated GFR is 63 mUminl1.73 m2. The next step is:

A. intravesical mitomycin C.
B. intravesical BCG.
C. cisplatin-based adjuvant chemotherapy.
D. retroperitoneal XRT.
E. RPLND.
ANSWER=A

Two separate trials (one utilizing mitomycin and one utilizing pirarubicin) have demonstrated a significant decrease in the risk of subsequent intravesical recurrence with the use of a single dose of intravesical chemotherapy after nephroureterectomy. Notably, patients from these trials had no prior history of bladder cancer as in this patient. As such, this patient should be offered a dose of intravesical mitomycin C. As BCG has not been reported in such trials, its use in this setting is not recommended. Likewise, adjuvant chemotherapy has not been demonstrated to be of benefit for patients with pT1 urothelial carcinoma. Similarly, radiotherapy is not recommended as there is insufficient data to support a benefit in this setting. Although lymph node dissection may be appropriate at the time of nephroureterectomy for patients with known or suspected high-grade or invasive tumors, a role for delayed lymph node removal has not been established, and therefore, cannot be recommended.

133. A 62-year-old man is catheterized for acute urinary retention due to BPH, and one liter of urine is initially drained. He is alert and oriented, but continues to have urine output of more than 200 mUhr. The next step is:

A. free access to oral fluids.
B. oral COX-2 inhibitor.
C. 0.9% normal saline I.V. at 300 mUhr.
D. lactated Ringer I.V. at 200 mUhr.
E. 0.45% normal saline I.V. at 300 mUhr.
ANSWER=A

Patients with normal renal function, normal electrolytes, no evidence of fluid overload, and normal mental status should have their vital signs and urine output monitored regularly, and they should be given free access to oral fluids. A 0.45% normal saline at a rate slightly below full replacement may be given if pathologic diuresis occurs. 0.9% normal saline and Lactated Ringer have no role in post-obstructive diuresis and should not be given. COX-2 activity may be increased in the post-obstructive phase and contributes to polyuria, and impaired urine-concentrating ability may be relieved by COX-2 inhibitor, but this intervention is still under evaluation.

134. A 55-year-old man with erectile dysfunction and a 50-degree left lateral curvature due- to Peyronie's disease is undergoing penile prosthesis surgery. Cylinder filling reveals a residual 35-degree curvature after tunical closure. The next step is:

A. upsize penile implant.
B. remove the cylinders and switch to a semi-rigid device.
C. clamp the tubing and perform penile modeling.
D. remove the cylinders and perform plaque excision/grafting procedure.
E. remove urethral catheter and reassess curvature after refilling the cylinders.
ANSWER=C

Penile prosthesis surgery is indicated for patients with erectile dysfunction and Peyronie's disease. According to the AUA Guidelines on Peyronie's disease, clinicians may perform adjunctive intraoperative procedures, such as modeling, plication, or incisionlgrafting, when significant penile deformity persists after insertion of the penile prosthesis. Switching to a larger cylinder will not correct the residual curvature and may cause penile buckling. Correction of the curvature and deformity using inflatable prostheses containing reinforced silicone or the material Bio-Flex@ is easier than with semi-rigid devices. The presence of a urethral catheter will not impact the degree of curvature. Plaque excision and grafting for a residual 35-degree curvature is excessive and may result in sensory deficits.

135. Paternity potential in males with spina bifida correlates positively with:

A. serum testosterone level.
B. sacral neurologic level of lesion.
C. reflexogenic erections.
D. shunt-dependent hydrocephalus.
E. glans penis sensation.
ANSWER=B

Studies on sexual function in males with spina bifida have demonstrated that paternity is associated with an L5 or sacral neurologic level. This neurologic level was present in 80% of patients who fathered children. This is in contrast to bladder function, which does not correlate well to the neurologic level of the lesion. The ambulatory status and presence of a ventriculoperitoneal shunt are other important factors associated with paternity. Serum testosterone levels are usually normal. Reflexogenic erections are present in the majority of spina bifida patients and are not predictive of paternity.

136. Five years after prostatectomy for prostate cancer, a 63-year-old man has a rising PSA despite castrate levels of testosterone on LH-RH agonist therapy. His PSA doubling time is six months. The remaining metastatic evaluation is negative. The next step is:

A. switch to LH-RH antagonist.
B. bicalutamide.
C. ketoconazole.
D. apalutamide.
E. sipuleucel-T.
ANSWER=D

This man has non-metastatic castration resistant prostate cancer (CRPC) since his PSA is rising despite adequate androgen deprivation therapy (ADT) and castrate levels of testosterone with a negative metastatic evaluation. Apalutamide is a next-generation antiandrogen that has been found to significantly improve metastasis free survival when compared to placebo for men with non-metastatic CRPC. Apalutamide or enzalutamide are now recommended as first line therapy in the latest version of the AUA Guidelines for nonmetastatic CRPC. Bicalutamide is no longer recommended as first line therapy and ketoconazole is no longer recommended for these patients who do not have metastatic disease. Since the patient has castrate levels of testosterone, switching to a LH-RH antagonist is not indicated. Sipuleucel-T is indicated only in the setting of non-symptomatic or minimally symptomatic metastatic CRPC.

137. A 63-year-old man has persistent urinary retention and fails a voiding trial four days after artificial urinary sphincter implantation. The 4 cm cuff is confirmed to be deactivated. The next step is:

A. CIC.
B. replace 10 Fr urethral catheter.
C. suprapubic tube.
D. cystoscopy.
E. surgical revision.
ANSWER=C

In the immediate postoperative period, retention should be managed by placement of a small, transurethral (10 or 12 Fr) catheter for 24 to 48 hours. At four days after surgery, this patient should no longer continue to have a urethral catheter or be performing CIC immediately after cuff placement. Cuff deactivation should be done at the time of the initial surgery and also confirmed to be deactivated if catheter placement is necessary. If the patient fails a voiding trial at 48 hours, suprapubic tube placement under ultrasound or fluoroscopic guidance is recommended to reduce the risk for urethral erosion associated with prolonged urethral catheter drainage. Retention that persists beyond several weeks implies that the cuff may be too small and, in such cases, re-operation and cuff upsizing may be required. Late-onset urinary retention necessitates cystoscopy and urodynamics to rule-out proximal urethral obstruction, cuff erosion, or detrusor failure.

138. A 64-year-old morbidly obese man has an uneventful placement of a three-piece inflatable penile prosthesis. In order to minimize future device autoinflation, the most effective perioperative strategy is:

A. aggressive weight loss.
B. avoid intercourse for three months.
C. keep implant completely deflated.
D. ectopidsubmuscular reservoir placement.
E. daily device inflation.
ANSWER=C

Maintaining the three-piece implant reservoir completely filled during the healing period will allow capsule formation around a larger space that wil.1 allow storage of an adequate volume of saline. Conversely, if the cylinders are partially filled, the reservoir will not be completely full and the capsule formed around the smaller structure may limit its future expansion and lead to autoinflation. Aggressive weight loss will not result in decreased compression of the reservoir or maintenance of a larger reservoir space in the retroperitoneum. Location of the reservoir will not impact the ability of the capsule to form and impact autoinflation. Similarly, avoiding intercourse for three months will not have a positive impact on preventing autoinflation if the cylinders remain partially filled.

139. A 75-year-old woman has bothersome nocturia four times a night despite evening fluid restriction. Examination shows vaginal atrophy, loss of urine with cough, and PVR of 90 mL. The next step is initiation of desmopressin acetate nasal spray (NoctivaTMa) nd:

A. check serum sodium in one week.
B. check serum sodium in one and four weeks.
C. night time CIC.
D. bulking agent.
E. mid-urethral sling.
ANSWER=B

This patient has bothersome nocturia as her main complaint. She is not complaining of stress incontinence, hence, no therapy is indicated for her at this time. Therapies for stress incontinence would be considered if she complains of this in the future. With desmopressin preparations, one should carefully monitor serum sodium levels and guidelines recommend this be done at one and four weeks after initiation of therapy. If hyponatremia develops, then one should stop this product immediately. There is a greater risk of hyponatremia in elderly patients. There appears to be a lower risk of hyponatremia in patients with the nasal spray as opposed to oral preparations. It is recommended that elderly patients are started on the lower dose of 0.83 mL (1 Noctiva spray).

140. Compared to sacral nerve stimulation outcomes after two years, women having intravesical onabotulinumtoxinA injections report significantly greater:

A. treatment satisfaction.
B. complete resolution of urgency urinary incontinence.
C. reduction in urgency urinary incontinence episodes.
D. reduction in urinary frequency.
E. incidence of adverse events.
ANSWER=A

The ROSETTA trial was a multi-center, open-label, trial randomizing participants to sacral neuromodulation (SNM) and 200 U of onabotulinumtoxinA. Outcomes of a two-year extension trial have been recently published with outcome data available for 87% of 298 clinical responders. There was no difference in decreased mean urgency urinary incontinence (UUI) episodes, urinary frequency, or differences in complete resolution of UUI. Women undergoing onabotulinumtoxinA maintained higher satisfaction with treatment. AS expected, onabotulinumtoxinA therapy was associated with more UTls and an increased need for post procedure CIC; however, the overall incidence of adverse events was statistically similar. No differences were seen in the proportions of participants requesting additional medication or alternative trial therapy off protocol post second injection. SNM revision and removals occurred in 3% and 9% patients, respectively. It should be noted that the 200 U dose in this study is double the FDA-approved dose of 100 U for non-neurogenic UUI.

141. The risk of incisional hernia following robotic radical prostatectomy may be reduced by:

A. fascial closure of non-bladed trocar incisions larger than 5 mm.
B. use of a supraumbilical extraction site.
C. using a transverse midline fascial incision for extraction.
D. minimize extraction site size by squeezing around the specimen bag.
E. using a running fascial closure.
ANSWER=C

Horizontal skin incision for camera port placement and transverse fascia1 incision for prostate specimen extraction has been associated with a decrease in the risk of incisional hernia from 5.4% to 0.4%. Fascial closure is required for non-bladed trocar sizes of 10 mm or more. There is no evidence that specimen extraction above versus below the umbilicus affects the likelihood of incisional hernia. Squeezing around the specimen through a minimally-sized incision increases the risk of tearing the fascia and subsequent incisional hernia formation. There is some evidence that interrupted versus continuous closure may result in lower risk of incisional hernia, particularly for midline hand-assisted approaches.

142. A 50-year-old man has a large right renal mass with tumor thrombus extending into the atrium. Under hypothermia and circulatory arrest, he has a nephrectomy with removal of the tumor thrombus. The most frequent significant complication is:

A. hepatic dysfunction.
B. pulmonary air embolus.
C. central nervous system deficit.
D. coagulopathy and hemorrhage.
E. tumor emboli.
ANSWER=D

Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage. The

most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction. Tumor emboli can occur but are relatively uncommon. Utilization of cardiopulmonary bypass limits the possibility of em bolic events.

143. The following reduces discomfort for male patients during flexible cystoscopy:
A. use of lidocaine gel.
B. use of lidocaine cream.
C. allowing men to watch their procedure on a monitor.
D. minimizing hydrostatic pressure during scope passage.
E. performing the procedure with minimal ambient light or sound.
ANSWER=C
Two randomized trials demonstrate that allowing men to observe their flexible cystoscopy on a video monitor reduced procedural discomfort. A meta-analysis of 817 patients from nine randomized trials failed to demonstrate a significant reduction in procedural tolerance when comparing lidocaine gel to plain gel. A randomized trial in 151 men demonstrated that increasing hydrostatic pressure while traversing the membranous urethra reduced procedural discomfort. Finally, another randomized trial demonstrated that listening to classical music had a calming effect during flexible cystoscopy and reduced pain, heart rate and blood pressure, while increasing patient satisfaction. -

144. According to the AUA Guideline on the evaluation and management of testosterone deficiency, conclusive evidence exists that testosterone therapy for hypogonadal men results in a greater risk of developing:
A. stroke:
B. myocardial infarction.
C. venothrom bolic events.
D. fertility impairment.
E. prostate cancer.
ANSWER=D
The 2018 AUA Guideline on the evaluation and management of testosterone deficiency states that the evidence is inconclusive at this time regarding a causal link between testosterone therapy in hypogonadal men and the development of stroke, myocardial infarction, venothrombolic events, and prostate cancer. Among the issues listed, only causal links between testosterone therapy and a greater risk of developing fertility impairment (via spermatogenesis impairment) have been conclusively proven

145. Two weeks after implantation of an inflatable penile prosthesis, a 62-year-old man has persistent penoscrotal pain and moderate scrotal swelling that has not subsided since surgery. He is afebrile with a WBC count of 70001cu mm. The wound is clean without discharge or erythema. The next step is:
A. observation.
B. antibiotics.
C. scrota1 ultrasound.
D. drainage of hematoma.
E. salvage procedure.
ANSWER=A
Early management and diagnosis of penile prosthesis infections can be facilitated by knowledge about the timeline of presentation. The temptation to prescribe antibiotics at the two-week postoperative interval must be resisted as this may mask a developing infection. In this scenario, if the device is not infected, the patient should experience a clinical improvement within the next 7 to 14 days. Conversely, antibiotics will not be helpful if the implant is infected and may merely delay the diagnosis. Systemic and localized signs, such as fever, erythema, swelling, elevated white blood cell count, and incision drainage typically present later and are usually not observed at this postoperative visit. The diagnosis is not aided by imaging studies such as scrota1 ultrasound or CT scanning. Drainage of the hematoma will risk infecting a device that may not be infected. The clinical scenario presented does not provide enough information for definitive diagnosis of an early prosthesis infection, and a salvage procedure is, therefore, not indicated at this juncture.

146. A 67-year-old man has a 2 cm itchy red patch on the lateral aspect of his scrotum. Biopsy shows intra-epithelial adenocarcinoma (extramammary Paget's disease). An evaluation for metastatic disease or other primary site is negative. The next step is:
A. local excision of visible lesion.
B. wide local excision.
C. C02 laser ablation.
D. 5-fluorouracil cream.
E. imiquimod cream.
ANSWER=B
Extramammary Paget's disease (EMPD) is a rare adenocarcinoma arising from apocrine gland bearing skin. EMPD should be distinguished from the clinically similar appearing squamous carcinoma-in-situ or Bowen's disease. EMPD has been reported to be associated with an underlying abdominal malignancy in up to 45% of cases, so it is recommended that the patient have a CT scan of the chestlabdomen and pelvis. Some centers also recommend a cystoscopy, colonoscopy, and PSA. The treatment of EMPD is wide local excision (some authors recommend a 3 cm margin) with intraoperative frozen section to ensure negative margins as the tumor frequently extends a significant distance into the adjacent normal appearing skin. Histological evaluation of the resected specimen allows for assessment of any areas of invasion which determines the risk of metastatic disease which can occur in the local inguinal nodes. As EMPD frequently extends well into the adjacent normal skin, local excision of the visible lesion is likely to result in a positive margin and the need for reexcision. There are reports of using the C02 laser, 5-fluorouracil, and imiquimod cream in EMPD. However, there is little data and the reports have been in patients who have failed or are not good candidates for primary surgical excision.

147. An 80 kg man with a creatinine of 2.3 mgIdL and an estimated GFR of 25 mUminl1.73 m2 is scheduled to have an open radical cystoprostatectomy and ileal conduit urinary diversion. Thromboembolic prophylaxis during his hospitalization should include intermittent pneumatic compression stockings and:
A. early ambulation.
B. 5000 IU of unfractionated heparin every 12 hours starting prior to induction of anesthesia until discharge.
C. 5000 IU of unfractionated heparin every 12 hours starting on postoperative day one until ambulatory. .
D. 40 mg of enoxaparin every 12 hours starting on postoperative day one until ambulatory.
E. 40 mg of enoxaparin every 24 hours starting prior to induction of anesthesia until discharge.
ANSWER=B
Patients undergoing radical cystoprostatectomy and urinary diversion are at significant risk of thromboembolic complications, and there is good evidence that the combination of intermittent pneumatic compression stockings and either unfractionated or low molecular weight (LMW) heparin decreases this risk. The optimal prophylaxis weighs the benefit of decreasing thromboembolic events with the risk of increased bleeding. There is not complete agreement on the optimal choice of drug or duration of therapy. However, there is increasing evidence that suggests that initiating therapy prior to induction of anesthesia is important. The duration of therapy is also controversial with increasing evidence that therapy should be continued for up to four weeks postoperatively. Either unfractionated heparin or low-molecular weight heparin are suitable choices. The advantage of LMW heparin is that it can be

administered once daily. LMW heparin can accumulate in patients with a creatinine clearance less than 30 mllminute, thus, dose adjustment is necessary. The prophylactic dose of the LMW drug enoxaparin is 40 mg once daily. A 40 mg dosage of enoxaparin is double the prophylactic dose and close to the anticoagulation dose for an 80 kg man. Thus, in a patient with renal insufficiency, the best choice is 5000 IU of unfractionated heparin every 12 hours starting prior to induction of anesthesia until discharge.

148. A 63-year-old man has a PSA of 15.3 ng/mL, and TRUS prostate dimensions are 6 x 7 x 7 cm. His PSA density is:

A. 0.8 nglm Ucc.
B. 0.1 ngImUcc.
C. 0.1 5 ng1mUcc.
D. 0.2 ng1mUcc.
E. 0.25 ng1mUcc.
ANSWER=B

Prostate volume is estimated using the following ellipsoid formula: .52 x length x width x height in cm. This equates to .52x6x7x7=53 cc. PSA density = PSA / prostate volume (mL) = 15.3/153 = 0.1 ng/mL/cc. PSA density of greater than 15 ng/mL/cc is associated with a greater risk of detecting prostate cancer on biopsy and may trigger earlier biopsy for patients on active surveillance.

149.. The preoperative intervention most likely to decrease hospital length of stay after urinary diversion is:

A. low carbohydrate diet.
B. mechanical bowel preparation.
C. antibiotic bowel preparation.
D. p-opioid antagonist.
E. epidural placement.
ANSWER=D

There has been significant interest and study of standardized pathways in patients undergoing radical cystectomy and urinary diversion. The development of ERAS (enhanced recovery after surgery) pathways in urology and colorectal surgery have suggested that preoperative bowel preparation is not necessary, although this has been questioned in recent years. Typical preoperative interventions, which are likely responsible for improved post-surgical recovery, include high carbohydrate diet, omission of a mechanical or antibiotic bowel preparation, and not placing an epidural catheter (replacing an epidural catheter with the use of pain pumps or liposomal bupivacaine). However, these interventions have not been shown to decrease hospital length of stay. The p-opioid receptor antagonist alvimopan has been shown to accelerate GI recovery and reduce length of hospitalization in patients undergoing radical cystectomy.

150. A 51-year-old woman has urinary retention 12 hours after a bulking agent injection. The next step is:

A. tamsulosin.
B. in and out catheterization.
C. indwelling urethral catheter.
D. suprapubic tube.
E. transurethral resection of bulking agent.
ANSWER=B

Urinary retention may happen after bulking agent injection. Usually, an in and out catheterization (with as small a catheter as possible) should be sufficient. The risk of placing an indwelling catheter is that the injectable bulking agent may mold around the catheter, thereby rendering the injection suboptimal. Tamsulosin can be tried, but it may take several days or more to become efficacious. Suprapubic catheter placement or TUR of the bulking agent (rarely indicated) would be premature at this point. If one had to perform TUR for persistent retention, the patient should clearly be informed of the high likelihood of recurrent incontinence.